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LONDON, SATURDAY, SEPTEMBER 2, 1848.

REVIEWS

The Conquerors of the New World and their Bondsmen: being a Narrative of the Principal Events which led to Negro Slavery in the West Indies and America. By the Author of 'Friends in Council,' 'The Claims of Labour,' &c. Vol. I. Pickering.

A REAL history of slavery is a desideratum in literature. The writer who shall give a philosophical view of the progress of this strange social institution—showing its nature and the extent to which it was found prevailing at the dawn of the historic ages,—tracing its history through the great states of antiquity, in all the conditions of society and in the midst of changing ethics and religious creeds, the influence of civilization upon it, the causes of its decline, and the certainty of its extinction,—will make a reputation for himself and add a most instructive and valuable book to the historical library. Considering the absorbing interest which attaches to the subject, the amplitude of the existing materials for such a work, and its great importance as a contribution to the History of Society, it is matter of some wonder that no one has as yet devoted himself to the task. Here is a theme fit for the greatest mind to grapple with; a subject grand and vast as Gibbon's,—abounding in dramatic variety,—touching all conditions of life, from the civilization of the Greek to the savagdom of the Congoan,—having upon its stage the utmost contrasts of persons and character, from Sambo the dark up to Plato the divine,—weaving itself into all the great systems of law in the ancient world, and connecting itself with the domestic phase of all history. Of course, a theme like this daunts by its vastness as much as it excites. The task would be not less difficult to do than noble when done. Industry in working up data, skill in narration, constructive power in making out one story from a multitude of widely scattered fragments, are only a few of the more ordinary qualities that such a work would demand in the person who should attempt it. He must have, also, a large and eclectic mind, free from the thralldom of periodic modes of thought and above the region of merely conventional morals; a reason cool and judicial, wedded to no intolerant system, but quick to find and ready to acknowledge the elements of good necessarily inhering in all long-lived institutions.

Whether the author before us possesses these qualities we are not about to discuss. The frank avowals of his Preface afford some hints by which the reader may judge. He has not attempted the large thesis of which we have sketched the outline; even when completed his work will be only a monograph—the history of one aspect and epoch of slavery, the slavery dealt in at Exeter Hall. The book, at best, will be only a fragment; and a fragment which can be ill understood without a knowledge of the precedents of the thing described. As a part of the history of society the history of slavery has a sort of unity—like the history of a science, of art, or of law—which is necessary to its thorough comprehension. Without tracing the past of an institution, without knowing the course of its evolution, it is profitless to study its present. How unintelligible, for example, would be the annals of astronomy in America written without any reference to the prior astronomical studies of Egypt, Greece, England, Germany, and so forth! Yet this is precisely what is here done in the matter of slavery. Now, *this* is no more indigenous to the American soil than *that*: nay, the institution has had a wider diffusion

and a larger share in the history of other lands—ancient and middle-age—than the science. To confine the view of it to one country or to one age, is to commit a great historical anachronism. It is to put a special fact in the place of a general law,—to invest one age with the responsibility of an evil which belongs to all ages,—and to cast the odium of a foul practice upon a nation which inherited but did not create it. This is unfair and unphilosophical. To write of Negro slavery as if the negroes were the first servile race and the New World the first land loaded with the curse of helotry, is as mischievous as it is false,—for it disturbs the faith of the unlearned in the progressive improvement of mankind. History cannot be cut up into squares and fragments. For ourselves, we prefer no information to misinformation: and, in its present form, we think this account of the conquerors of the New World and their bondsmen quite as likely to do harm as good.

We are aware that the writer may say, his plan did not include the history which we demand; his object being only to show how the Black race came into America. Perhaps, though we might have better approved of a design somewhat less locally limited, we have no right to object to this. The author follows his own idea: we must suppose that he presents his subject in what he considers to be a complete and attractive form. But we have a right to complain of, and to warn the reader against, the one-sidedness with which this is done. In his Dedication the author says that before studying the subject specially for this work, he had "no knowledge of what may be supposed to be the well-known facts of the case." This assurance we can readily accept—as well from the implied as from the asserted evidence. But we might not unreasonably have expected that the man who proposed to chronicle the events of an institution as old as history and universal as the ancient world, would have dipped into the pages of a few of the great historians and jurists of antiquity, and have told his readers out of them that slavery did exist in the world before the discoveries of lower Africa and America in various shapes, and that those important discoveries only gave a new direction to a traffic already well known.

When every allowance which the severest regard to historic truth demands is made, a vast weight of opprobrium still rests upon Spain and Spaniards:—they cannot afford to have any injustice done to them. Our author begins his account by a long, and, as it appears to us, superfluous, detail of the course of Portuguese discovery on the western coast of Africa, marking the periods when the Negro first came, in his own country, into contact with Europeans, and the first dawns of the slave trade. A few lines would have conveyed all the information on this subject really to the point; the remainder of the space might have been much more profitably employed in showing how the idea of slavery was woven in the texture of the Iberian mind. It was so; and the trade in negroes grew up in Spain with no violence whatever to the sentiment of the people. In the palmiest days of Hellenic civilization and Roman dominion this institution prevailed universally. Lycurgus sanctioned, the decemvirs recognized, its existence. Christianity did not forbid it. Mohammed found it prevailing, and did not oppose it. An oriental can barely yet conceive of a society without it. It was a social condition, as well as a political order. The highest races and the supremest intellects were sometimes involved in it. Greeks were slaves in Greece and Italians in Italy.

Reverses in wars gave armies—nations, even—into bondage. No man was exempt from such a fate,—and it was calmly submitted to because the practice was universal. Had any of the Southern races—Hellenes, Carthaginians, Romans, Arabians—permanently maintained dominion over the world, slavery would perhaps have been its perpetual heirloom.

Its death-blow came from the North. The hardy warriors from the German forests and Scandinavian seas brought into the struggles of an expiring civilization new elements of domestic life, which cut the root of all servile conditions, and gradually, where their sway was most complete, emancipated the helot class. This process, however, even in the countries most thickly settled by the Northern races, was not rapid. It passed through various stages, from absolute slavery, through serfdom and villenage, up to the dignity of freedom. In the South of Europe, the remains of the old slave system remained much longer; and while as yet all was chaotic and confused, the Arab conquerors—an Oriental race, to whom slavery was an historical institution—swept along the African coasts and fixed themselves in the European peninsula. To the long conflicts of the Moors and Spaniards for the possession of the country may perhaps be ascribed the long continuance of slavery in Western Europe. The rival races made slaves of each other; each warrior, as he went forth to battle, looked to that condition as one of his probable contingencies, and regarded it with no greater dread than any other of the accidents of war. It was the same with every other people in conflict with the Ottoman—but, of course, would be least cared for by those born to its contemplation and constantly in face of it, like the Spaniards. To them it had few horrors, either to inflict or to endure.

The Moors, holding empire both in Spain and Africa, carried on a large and lucrative traffic in negroes long before any European state had the means of entering into it. They exchanged their Barbary horses for negroes at the town of Hohen, beyond Cape Blanco—getting from ten to eighteen for each horse,—and carried them to the markets of Turin, Sicily and Seville, where they brought vast profits; it being a point of pride with the wealthy Christians to have their households crowded with the sable skins. After the Moors were driven out of Spain, the sentiment and habitual feeling which sanctioned the trade in man, the property in human blood, began to give way: but the eradication of a national idea domesticated for many centuries, and never entirely foreign, was, of course, very gradual; and, in the mean time, the New World was discovered, and the Spaniards carried to it and established in the empire which they founded there the political and domestic institutions to which they had been accustomed at home. However unjust and how disastrous soever these institutions proved, we must not, as we have said, charge the sin and guilt of them home to the men of that day. They perpetuated—and without a proper knowledge of its guilt—the inheritance which their fathers had left them. So much blame attaches to them for the *use* which they made of their mastery—the extermination of the natives by fire and sword, by starvation and compelled labour, by wanton waste and deadly cruelty, by the torch, the matchlock and the bloodhound,—that we need not heap upon them the sins of others.

That the institution of slavery was not repugnant to the moral sense, the religious feeling, or the intelligence of that age, our author furnishes abundant proofs. The greatest and most illustrious personages sanctioned it—Columbus, Ferdinand of Arragon, and Prince Henry of

Portugal. In an analysis of one of the Discoverer's despatches to Ferdinand and Isabella from Hispaniola we read.—

"Columbus now touches upon a matter which intimately concerns our subject. He desires Antonio de Torres to inform their Highnesses that he has sent home some Indians from the Cannibal islands as slaves, to be taught Castilian, and to serve afterwards as interpreters, so that the work of conversion may go on. His arguments in support of this proceeding are weighty. He speaks of the good that it will be to take these people away from Cannibalism, and to have them baptized, that so they will gain their souls, as he expresses it. Then, too, with regard to the other Indians, he says, we shall have great credit from them seeing that we can capture and make slaves of these Cannibals of whom they, the peaceable Indians, entertain so great a fear. Such arguments must be allowed to have much force in them; and it may be questioned whether many of those persons who are, in these days, the strongest opponents of slavery, would then have had that perception of the impending danger of it which Los Reyes appear to have entertained, from their answer to this part of the document. 'This is very well, and so it must be done; but let the Admiral see whether it could not be managed there,' (i.e. in the Cannibal islands) 'that they should be brought to our sacred Catholic Faith, and the same thing with the Indians of those islands where he is.' The Admiral's despatch in the next paragraph goes much further; he boldly suggests that for the advantage of the souls of these Cannibal Indians, the more of them that could be taken, the better; and that considering what quantities of live stock and other things were necessary for the maintenance of the Colony, a certain number of caravels should be sent each year with these necessary things, and the cargoes be paid for in slaves taken from amongst the Cannibals. He touches again on the good that will be done to the Cannibals themselves; alludes to the Customs duties that their Highnesses may levy upon them; and concludes by desiring Antonio de Torres to send, or bring, an answer, 'because the preparations here' (for capturing these cannibals) 'may be made with more confidence, if the scheme seem good to their Highnesses.' A more distinct proposition for the establishment of a slave trade was never made, though we must do Columbus the justice to believe that his motives were right in his own eyes."

Columbus had been brought up on the African coasts, and had there and elsewhere been accustomed to slavery: his motives, however,—for he was an eminently wise and just man for his age—were to convert these slaves to Christianity and to civilization. How far man has a right to do this—to enslave the body under the pretence of saving the soul of his fellow-creature—is a point which we are not to discuss here. Rightly or wrongly the world has made up its mind—and against the doctrine of the Discoverer. That Columbus proceeded on, for him, sufficing reasons, we need not doubt—though his argument may be unsound. We do not visit him with penal censures because his social ideas were not those of the nineteenth century, any more than we would denounce Plato for the difference between our ethics and his. Great men belong only to their ages,—and are, like events, historical.

The connexion of Columbus with the establishment of slavery in America is strongly brought out by our author,—rather too strongly, we think; but there can be no doubt as to his participation in the matter. At first, only prisoners taken in war were enslaved—a custom to which the conquerors had been long inured. But when more labourers were wanting, pretences for hostilities were easily found, and the inhabitants of whole districts were cleared off and sent to work the mines, where they perished yearly by thousands. This was in the time of Ovando's government, after the disgrace and recall of Columbus. Events in Italy also hastened the ruin of the poor aborigines.—

"The troublous and perplexed times in Spain from

Isabella's death to Ferdinand's return from Naples to take the Regency, and for some time after, must have made many suitors for royal favour whom it were hard to deny. Ferdinand was not fond of giving, and with the great and costly affairs he was engaged in, seldom had much to give. Indians, however, were now a sort of money. The courtiers asked for *repartimientos* of Indians—some purposing to go themselves to Hispaniola and push their fortunes there, and others intending merely to farm their Indians out, as absentee proprietors. Ferdinand did not resist these applications; and though the Governor Ovando, probably aware of the mischief, and alive to the inconvenience, remonstrated as much as he dared, especially against absentee proprietors, there were many cases in which he must have been obliged to give way. The mania for gold-finding was now probably at its height; and the sacrifice of Indian life proportionately great."

Indians soon becoming scarce in the island, it became necessary to import labourers from elsewhere. As yet the idea of transferring the sable servitors of the Spanish grandees to the mines of Hispaniola had not occurred: but workers must be had or the mines would be profitless,—and this was the way in which they were obtained.—

"Ferdinand was told that the Lucayan islands were full of Indians; and that it would be a very good thing to bring them to Hispaniola 'that they might enjoy the preaching and political customs' which the Indians in Hispaniola enjoyed. 'Besides, they might assist in getting gold, and the King be much served.' The King gave a licence. The first Spaniards who went to entrap these poor Lucayans did it in a way that brings to mind our English proverb—'seething a kid in its mother's milk'—for they told these simple people that they had come from the heaven of their ancestors, where these ancestors and all whom the Indians had loved in life were now drinking in the delights of heavenly ease: and these good Spaniards would take the Lucayans in their ships to join their much-loved ancestors, and dearer ones than ancestors who had gone thither. We may fancy how the more simple amongst them, lone women and those who felt this life to be somewhat dreary, crowded round the ships which were to take them to the regions of the blest. I picture to myself some sad Indian, not without his doubts of these Spanish inducements, but willing to take the chance of regaining the loved past, and saying like King Arthur to his friend Sir Bedivere upon the shore,

I am going a long way
With these thou seest— if indeed I go—
(For all my mind is clouded with a doubt)
To the island-valley of Avilion;
Where falls no rain, or hail, or any snow,
Nor ever wind blows loudly; but it lies
Deep-meadow'd, happy, fair with orchard-lawns
And bowery hollows crown'd with summer sea,
Where I will hallow me of my grievous wound.

Alfred Tennyson. 'Morte d'Arthur,' vol. 2, p. 15.

This hideous pretence of the Spaniards did its work; but there were other devices, not mentioned to us, which were afterwards adopted; and the end was, that in five years forty thousand of these deluded Lucayans were carried to Hispaniola. Most men in the course of their lives have rude awakenings which may enable them to form some notion of what it was to come down from the hope of immediate paradise to working as a slave in a mine. Some lived on in patient despair; others of fiercer nature, refusing sustenance, and flying to dark caves and unfrequented places, poured forth their lives, and we may hope were now, indeed, with the blest. Others of more force and practical energy, 'peradventure the wisest,' as Peter Martyr says, made escape to the northerly parts of Hispaniola, and there with 'arms outstretched' towards their country, lived at least to drink in the breezes from their native lands. Those lands were now paradise to them."

This was one of the last acts of the monk Ovando's government. He gave place to Diego Columbus, son of the Discoverer. But things did not improve much in consequence of the change. We have noticed that the chief motive which Columbus had in taking possession of the natives, was to convert them;—this mo-

tive was also avowed by the King and Queen. Of the way in which converts were sought to be made we have an instance in one of the proclamations of Ojeda,—which, after setting forth that the Pope had given to the Kings of Castile and Leon, &c., sovereign power and dominion over the New World, to christianize and to rule it, goes on to say.—

"Wherefore I entreat and require you," says Ojeda, or any other privatizing discoverer, 'that after taking due time to consider this, you acknowledge the "church" as sovereign lady of the world and the Pope in her name, and His Majesty, in his place as Lord of these isles and continent, and receive these religious men. If you do, His Majesty will greet you with all love and affection and leave you your wives and children free, and will give you many privileges and exemptions. But if you do not, by the help of God I will enter with power into your land and will subdue you, and will take your wives and children and make slaves of them, and sell them as such, and take all your goods and do you all the mischief I can, as to Vassals that do not obey and will not receive their Lord."

It would be difficult to match the terms of this proclamation, even out of the most intolerant reigns of Mohammedan sovereigns: after this, we do not marvel to find Spanish soldiers gravely hanging thirteen natives, as Las Casas says, "in honour and reverence of Christ our Lord, and His Twelve Apostles." As yet, the history before us is brought down only to the promulgation of the laws of Burgos. Another volume is expected to complete the narrative. Should a second edition be called for, we would counsel its author yet to give some account of the older slavery which existed in Europe, and particularly in the Peninsula, before the discovery either of the New World or of Negroland. Such an addition is necessary to the completeness of his plan—to the unity and consecutiveness of history—to the fair apportionment of praise and blame—and to the clear understanding of the question. The portion of the subject really treated of is touched with care, good taste and correct feeling. The book is not unlikely to become popular,—and we would therefore desire to have it as complete as possible.

Antologia Española.—[A Review of Science, Literature, Criticism, and the Fine Arts]—*Revista*, &c. No. 1. Vol. I. Madrid, Office of El Siglo; London, Rich & Sons.

THERE are good reasons why the reports of a journal like ours should in general be confined to substantive works: abstaining from the notice of literary periodicals, as lying out of its appropriate province. *Clericus clericum non decimat*; and the critic who reviews contemporaries in his own profession is apt to fall under the reproach of those who babble in public of their feelings on "family affairs." The condition of literature in the Peninsula, however, is so peculiar, that an exception to the general rule may fairly be allowed in the case of a Spanish Review, the first of its particular class, we believe, that has appeared in Madrid. The attempt to establish in that capital a periodical of the highest pretensions, on a plan more comprehensive even than that of any English or French publication of its kind, is something more than an ordinary literary occurrence; and a few words may be said on the commencement of such a work without trespassing on what in common cases may justly be deemed forbidden ground.

The design of the '*Antologia Española*,' as set forth in the introduction to its opening number, is indeed extensive enough, not to say ambitious. The editors complain, in the first place, of the "deplorable result" hitherto of every attempt to establish in Spain a general literary period-

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ical of substantial value; a result ascribed in part to the indifference of the public, in part to the scanty forces and limited ideas of the projectors and contributors. The necessity is then declared of stirring up the dormant mind of the public by a "vast Anthology, in which may be contained without difficulty all that concerns the progress of letters at home and abroad; in which a chair may be founded to teach the principles of pure taste; in which criticism shall impart true and faithful instruction; in which the arts and the sciences most closely and immediately connected with them may obtain an authoritative interpretation; in which, finally, the author, the actor, the public, and essentially Art itself, may recognize judges alike severe and impartial." An enterprise that shall fulfil all these conditions may well be termed a "vast" one.

Not only has the want of such a publication, it is said, impeded the literary growth of Spain; it also accounts for the ignorance prevailing in all transpyrenean nations, "with the sole exception of learned Germany," in regard to what is actually growing there—"to our very active literary movement,"—says the reviewer, "particularly in the drama, in which we are as productive, perhaps, as the French." The assertion on this chapter is rather obscurely worded—if it refer to present times exclusively, it may well render foreigners curious to obtain more information respecting the growth which is described in such flourishing terms, and to ascertain the quality as well as the quantity of what is produced.* As to the rich abundance and rare poetical merit of the older or true drama of Spain, we apprehend that these are known and prized by the cultivated in all civilized nations,—nearly as well, perhaps, as in Spain herself—if we may believe the reports of those who know the country well, or draw inferences from matter of fact,—such, for instance, as that significant circumstance that no modern Spanish publisher has yet produced a complete edition of Lope or of Calderon, to say nothing of less celebrated but still excellent dramatists. The only entire collection of the plays of Calderon approaching completeness is that edited by Keil for Fleischer, the Dresden bookseller, in 1827.

Viewing the plan of the 'Antologia' as foreigners, to whom any authentic reports of the literature, art, or public opinion of Spain cannot fail to be welcome, in the general dearth of such knowledge here,—we must heartily desire the success of a publication that makes large promises of intelligence on these topics. Nor shall we allow these good wishes to be chilled by what has been said, and sometimes proved true, of a certain proneness in the Spanish nature to frustrate magnificent hopes by scanty performances. What we have to remark on this chapter concerns the efficacy of a work such as is promised—supposing its promises fulfilled to the letter—to create rather than satisfy the demand of a literary taste in the Spain of to-day. For this is the calling to which the editors plainly address themselves. They deplore the want of a cultivated reading class and of an active public opinion; and hope that it may be in their power to promote the existence of both by their Review. This, we apprehend, is not a very hopeful prospect, if means of this description alone are at hand to realize it.

Judicious criticism on books or works of Art, and an intelligent discussion of material in-

* Of this we had some occasion to speak last year in a notice of one of the most prolific of the modern Spanish playwrights, Zorrilla. [*Ath.* No. 1033]. The merits of his dramatic offspring we were sorry to find in inverse proportion to their number. The plays of Hartzenbusch, Zorrilla, Gutierrez, Rubi, &c. we will hope may be better; but they have not yet fallen in our way.

terests or political topics, are valuable aids when they can be applied to minds already in some degree prepared to entertain them. Their effect, however, is rather ancillary than creative. In order to this effect there must exist in the one case that general love and cultivation of letters which partly attend upon and partly make a flourishing period of literary production; in the other, that habit of considering public questions on rational grounds which is formed by degrees in a settled order of things, when the right of freely debating such matters has first been long established. The critic or the publicist assumes an office the prime condition of which is the pre-existence of an audience alive to the subjects which he undertakes to discuss, and disposed to hear with attention what may be said on topics with which they are already in some degree acquainted. This disposition cannot appear until after literature has taken firm possession of the popular mind by a series of genial productions, or until public institutions have created what we call public opinion. The essential work must first have been done, and have borne abundant fruits, before men can be apt for reflection on its principles and processes:—so that criticism, whether of literature or politics, while it may be useful as a comment and appendix to a living production of the time, cannot from its very nature create or precede it. It may be apprehended that in such a condition of letters and politics in Spain as the editors of the 'Antologia' testify their desire to improve, the day is scarcely yet come for the true operation of such a work as theirs:—and that the reason why Madrid has not kept pace in this respect with London or Paris lies rather in the want of a public of readers advanced to the stage at which literary or political criticism becomes effectual, than in the imperfections of the writers who have hitherto attempted to supply it.

From the contents of the first number we may infer that if the 'Antologia' should not prosper, its failure will not be chargeable on its contributors. The editors, Don Simon Santos and Don Rafael Maria Baralt, are men of known literary standing in the capital:—and they appear to be supported by many other well qualified colleagues. The matter of the Review is not wanting in variety. There are literary notices creditable in tone and substance; a sensible essay on the much-debated cotton question; textual reports of lectures on history, in course of delivery at the Athenæum of Madrid; surveys of dramatic literature, and of the politics of the month; some unpublished letters of the celebrated Jovellanos; and several original poems, one of which, by the second editor, Don Rafael Baralt, to the memory of Arguëlles—in the style of ode which Herrera illustrated—is of more than ordinary merit, although the poet seems too prone to mistake inflation for sublimity. The style of the prose essays is perhaps more rhetorical than always becomes the subjects handled; we cannot admire tropes and high-flown phrases in a treatise on the cotton duties, or in the discussion of historical details:—and we are unpleasantly reminded by the frequent intrusion of French turns of speech, of the degree to which the modern Spanish has suffered by the influence and imitation of an inferior language. On the whole, however, the Review starts on its patriotic course in a spirited manner; and will deserve to succeed while so continued—if success can be ensured by desert. We shall be glad to hear of its further progress: which, for the reasons already given, we may rather heartily desire than confidently expect. We fear, in short, that whatever efforts may now be made to revive in Spain a literature of her own, the influence of French productions

is still really paramount with those classes that alone take any lively interest in the current reading of the day; and while this is the case, the hour is yet to come for the establishment of literary criticism on the only secure basis of a truly national cultivation. We apprehend that the heated state of politics, and the severity with which the present Government of Spain has visited written utterances of public opinion, are circumstances quite fatal to the discussion, at once frank and deliberate, of the material interests of the time,—on which alone can the true influence of the publicist be founded. From hence we are led to conjecture that the editors of the 'Antologia,' in their wish to establish in Madrid a publication on a level with the celebrated European Reviews,—if not to take still higher ground than theirs—have rather consulted a natural and commendable zeal than perceived the essential difference of position with which they must contend in such an enterprise. Of its continuance, however, we shall be glad to hear: not only, as we have said, because authentic reports of Spanish letters and politics must be interesting to foreigners, who can seldom obtain trustworthy information on these topics, but also as its success on the plan set forth will be an evidence of a state of national cultivation, in its most important branches—more encouraging than any that has yet come to our knowledge from the capital of Spain.

Physical Geography. By Mary Somerville. 2 vols. Murray.

Mrs. Somerville is so well known for her scientific observations and her beautiful works on the mechanism of the heavens and the connexion of the physical sciences, that we might fairly reckon upon receiving at her hands an interesting work on the subject of physical geography. Although there are few subjects drier and more uninteresting in their details than geography when confined to descriptions of the mere form of the earth, the height of its mountains, the length and breadth of its rivers with the extent of its oceans,—the whole features of this study become changed when, instead of regarding the objects which it embraces in their present condition or superficial character, we enter on their past history and examine their nature and relations by the light of modern science. It is to Alexander von Humboldt that we are chiefly indebted for bringing to bear the great facts of physical science upon the inquiries of the traveller and geographer. Since his time, a band of illustrious men have arisen who have trodden in the footsteps of their great master,—and who, not satisfied with giving dry descriptions of the prominent features of the various parts of the world which they have visited, have lighted their way through trackless wildernesses, over mountain heights, amid tropical heats and polar ice, with the lamp of natural science. These men have left behind them abundant materials for the industrious systematizer; and we may now be said to possess a system of physical geography. Although this subject embraces a much wider field than any hitherto attempted by Mrs. Somerville, yet, as it included many branches of knowledge to which she had devoted especial attention, we anticipated an interesting and instructive volume. We must, however, confess in *limine* our conviction that it is in the application of the physical sciences to the explanation of the phenomena presented by the earth's surface, that our authoress has most perfectly succeeded.

The work commences with the description of the inorganic portions of the earth's surface;—and first with the characters presented by the solid matter. This is fitly preceded by a

sketch of the present state of the science of geology, involving an explanation of the changes which have taken place in the various strata and which have contributed to their present aspect. We give a specimen of the manner in which our authoress has treated this part of the subject.—

"The thickness of fossiliferous strata up to the end of the tertiary formation has been estimated at about seven or eight miles; so that the time requisite for their deposition must have been immense. Every river carries down mud, sand, or gravel to the sea; the Ganges brings more than 700,000 cubic feet of mud every hour, the Yellow River in China 2,000,000, and the Mississippi still more; yet, notwithstanding these great deposits, the Italian hydrographer, Manfredi, has estimated that, if the sediment of all the rivers on the globe were spread equally over the bottom of the ocean, it would require 1000 years to raise its bed one foot; so at that rate it would require 3,960,000 years to raise the bed of the ocean alone to a height nearly equal to the thickness of the fossiliferous strata, or seven miles and a half, not taking account of the waste of the coasts by the sea itself; but if the whole globe be considered instead of the bottom of the sea only, the time would be nearly four times as great, even supposing as much alluvium to be deposited uniformly both with regard to time and place, which it never is. Besides, in various places the strata have been more than once carried to the bottom of the ocean and again raised above its surface by subterranean fires after many ages, so that the whole period from the beginning of these primary fossiliferous strata to the present day must be great beyond calculation, and only bears comparison with the astronomical cycles, as might naturally be expected, the earth being without doubt of the same antiquity with the other bodies of the solar system. What then shall we say if the time be included which the granitic, metamorphic, and recent series occupied in forming? These great periods of time correspond wonderfully with the gradual increase of animal life and the successive creation and extinction of numberless orders of being, and with the incredible quantity of organic remains buried in the crust of the earth in every country on the face of the globe. Every great geological change in the nature of the strata was accompanied by the introduction of a new race of beings, and the gradual extinction of those that had previously existed, their structure and habits being no longer fitted for the new circumstances in which these changes had placed them. The change, however, never was abrupt, except at the beginning of the tertiary strata; and it may be observed that, although the mammalia came last, there is no proof of progressive development, for animals and plants of high organization appeared among the earliest of their kind."

In this last sentence we think Mrs. Somerville goes to the other extreme of a very absurd theory. Although there is no evidence of a continuous development of one being from another, we think that few persons could read our authoress's own account of the successive families of animals that have appeared upon the surface of the earth without concluding that there has been a progressive development—not a progress from species to species, but a progress of the whole. We do not say that the theory of the progressive creation of higher animals on the surface of the earth is proved; but what we maintain is, that it has a greater number of facts in its favour than the supposition that there has been no such progress. When the advocates of the antiprogessive theory of creation shall have hewn a man or a mammoth out of the Cambrian rocks in company with an oak or a palm, they will have some reason for stating that "animals and plants of high organization appeared among the earliest of their kind." It is very often the case that persons adopt the opposite of some absurd theory, as if this gave them claim to occupy a more dignified position than the originators and supporters of the absurdity. The opponents of error are not

always the advocates of truth—and every theory must rest upon its own merits.

From the geological sketch we pass on to the consideration of the form of the great continent, its high lands and mountains. There is an interesting account of the European mountains: of which take the following as a specimen.—

"It is scarcely possible to estimate the quantity of ice in the Alps; it is said, however, that, independent of the glaciers in the Grisons, there are 1500 square miles of ice in the Alpine range, from eighty to six hundred feet thick. Some glaciers have been permanent and stationary in the Alps, time immemorial, while others now occupy ground formerly bearing corn or covered with trees, which the irresistible force of the ice has swept away. These ice rivers, formed on the snow-clad summits of the mountains, fill the hollows and high valleys, hang on the declivities, or descend by their weight through the transverse valleys to the plains, where they are cut short by the increased temperature, and deposit those accumulations of rocks and rubbish, called moraines, which had fallen upon them from the heights above. In the Alps the glaciers move at the rate of from twelve to twenty-five feet annually, and, as in rivers, the motion is most rapid in the centre. They advance or retreat according to the mildness or severity of the season, but they have been subject to cycles of unknown duration. From the moraines, as well as the striae engraven on the rocks over which they have passed, M. Agassiz has ascertained that the valley of Chamouni was at one time occupied by a glacier that had moved towards the Col di Balme. A moraine 2,000 feet above the Rhone at St. Maurice shows that at a remote period glaciers had covered Switzerland to the height of 2,155 feet above the Lake of Geneva. Their increase is now limited by various circumstances—as the mean temperature of the earth, which is always above the freezing-point in those latitudes; excessive evaporation; and blasts of hot air, which occur at all heights, in the night as well as in the day, from some unknown cause. They are not peculiar to the Alps, but have been observed also on the glaciers of the Andes. Besides, the greater the quantity of snow in the higher Alps, the lower is the glacier forced into the plains."

The most remarkable chain of mountains that distinguishes the great continent is the Himalaya. The general features of these mountains are described with accuracy, and some of their peculiarities in a picturesque and forcible manner.—

"The mean height of the Himalaya is stupendous, certainly not less than from 16,000 to 20,000 feet, though the peaks exceeding that elevation are not to be numbered, especially at the sources of the Sutlej; indeed, from that river to the Kallee the chain exhibits an endless succession of the loftiest mountains on earth: forty of them surpass the height of Chimborazo, the highest but one of the Andes, and many reach the height of 25,000 feet at least. So rugged is this part of the magnificent chain, that the military parade at Sabathoo, half a mile long, and a quarter of a mile broad, is said to be the only level ground between it and the Tartar frontier on the north, or the valley of Nepal to the east. Towards the fruitful valleys of Nepal and Bhotan the Himalaya is equally lofty, some of the mountains being from 25,000 to 28,000 feet high, but it is narrower, and the descent to the plains excessively rapid, especially in the territory of Bhotan, where the dip from the table-land is more than 10,000 feet in ten miles. The valleys are crevices so deep and narrow, and the mountains that hang over them in menacing cliffs are so lofty, that these abysses are shrouded in perpetual gloom, except when the rays of a vertical sun penetrate their depths. From the steepness of the descent the rivers shoot down with the swiftness of an arrow, filling the caverns with foam and the air with mist. At the very base of this wild region lies the elevated and peaceful valley of Bhotan, vividly green and shaded by magnificent forests. Another rapid descent of 1,000 feet leads to the plain of the Ganges. • • • Most of the passes over the Himalaya are but little lower than the top of Mont Blanc; many are higher, especially near the Sutlej, where they are from 13,000 to 19,000 feet high, and that north-east of Khoonawur is 20,000

feet above the level of the sea, the highest that has been attempted. All are terrific, and the fatigue and suffering from the rarity of the air in the last 500 feet is not to be described. Animals are as much distressed as human beings, and many die. Thousands of birds perish from the violence of the wind, the drifting snow is often fatal to travellers, and violent thunder-storms add to the horror of the journey. The Niti pass, by which Mr. Moorcroft ascended to the sacred lake of Manasa in Tibet, is tremendous; he and his guide had not only to walk barefooted from the risk of slipping, but they were obliged to creep along the most frightful chasms, holding by twigs and tufts of grass, and sometimes they crossed deep and awful crevices on a branch of a tree, or loose stones thrown across; yet these are the thoroughfares for commerce in the Himalaya, never repaired nor susceptible of improvement from the frequent landslips and torrents. The loftiest peaks being bare of snow gives great variety of colour and beauty to the scenery, which in these passes is at all times magnificent. During the day the stupendous size of the mountains, their interminable extent, the variety and sharpness of their forms, and, above all, the tender clearness of their distant outline melting into the pale blue sky, contrasted with the deep azure above, is described as a scene of wild and wonderful beauty. At midnight, when myriads of stars sparkle in the black sky, and the pure blue of the mountains looks deeper still below the pale white gleam of the earth and snow-light, the effect is of unparalleled solemnity, and no language can describe the splendour of the sunbeams at daybreak streaming between the high peaks, and throwing their gigantic shadows on the mountains below. There, far above the habitation of man, no living thing exists; no sound is heard; the very echo of the traveller's footsteps startles him in the awful solitude and silence that reigns in these august dwellings of everlasting snow."

The other regions of the world are examined, with their table lands, low lands, steppes and plains. Africa, America and Australia are thus separately described. The subject of Australia and the South Sea islands leads to the discussion of coral reefs, volcanic islands, the phenomena of subsidence and elevation, especially as they occur in the Pacific Ocean,—and the effects of volcanic action. Mrs. Somerville adopts Mr. Darwin's views of the South Sea groups—that, far from being a mass of islands rising higher above the level of the ocean through the agency of the coral animal, they are a continent saved only from more rapid disappearance by the agency of these creatures.—

"There are strong reasons for believing that a continent once occupied a great part of the tropical Pacific, some part of which subsided by slow and imperceptible degrees. As portions of it gradually sank down below the surface of the deep, the tops of mountains and table-lands would remain as islands of different magnitude and elevation, and would form archipelagos elongated in the direction of the mountain-chains. Now the coral-insect which constructs the outward wall and mass of the reefs never builds laterally, and cannot exist at a greater depth than 25 or 30 fathoms. Hence, if it began to lay the foundations of its reefs on the submerged flanks of an island, it would be obliged to build its wall upwards in proportion as the island sank down, so that at length a lagoon would be formed between it and the land. As the subsidence continued, the lagoon would increase, the island would diminish, and the base of the coral reef would sink deeper and deeper, while the insects would always keep its top just below the surface of the ocean, till at length the island would entirely disappear, and a perfect atoll would be left. If the island were mountainous, each peak would form a separate island in the lagoon, and the encircled islands would have different forms, which the reefs would follow continuously. This theory perfectly explains the appearances of the lagoon islands and barrier reefs, the continuity of the reef, the islands in the middle of the lagoons, the different distances of the reefs from them, and the forms of the archipelago so exactly similar to the archipelagos of ordinary islands, all of which are

that has the tops of submerged mountain-chains, and generally partake of their elongated forms."

From the solid rocks and dry land we pass on to the great encircling ocean. Its chemical composition, physical properties, and influence on the form of the coasts which it surrounds are treated in detail. Here is Mrs. Somerville's account of the tides.—

"Raised by the moon and modified by the sun in the equatorial seas, the central area of the two oceans is occupied by a great tidal wave, which oscillates continually, keeping time with the returns of the moon, having its motion kept up by her attraction acting at each return. The height of these oceanic tides depends upon the relative position of the sun and moon, and upon their declination and distances from the earth. From the skirts of this oscillating central area, partial tides diverge in all directions, whose velocity depends upon the depth and local circumstances of the sea: these derivative tides are so much influenced by the form of the shore along which they travel that they become of great magnitude in the higher latitudes, while near the centre of the oscillating area the oceanic tide is often very small. The spring tides rise 50 or 60 feet on some parts of the British coast; in the Bay of Fundy, in Nova Scotia, they rise 60 feet; at St. Helena, they never exceed three feet; and there is scarcely any tide among many of the tropical islands in the Pacific. At the equator the tide follows the moon at the rate of 1,000 miles an hour; but the derivative tides are so retarded by the form of coasts and irregularities at the bottom of the sea, that a tide is sometimes impeded by an obstacle till a second tide reaches the same point by a different course, and the water rises to double the height it would otherwise have attained: a complete extinction of the tide takes place when a high-water interferes in the same manner with a low-water, as in the centre of the German Ocean; and when two unequal tides of contrary phases of rise and fall meet, the greater overpowers the lesser, and the resulting height is equal to their difference: such varieties occur chiefly among islands, and at the estuaries of rivers. When the tide flows suddenly up a river, it checks the descent of the stream, so that a high wave, called a bore, is driven with force up the channel. This sometimes occurs in the Ganges; and in the Amazon, at the equinoxes, during three successive days, five of these destructive waves, from 12 to 15 feet high, follow one another up the river daily. In the Turry Channel, in Cayenne, the sea rises 40 feet in five minutes, and as suddenly ebbs. There may be some small flow of the water westward with the oceanic tide under the equator, though it is imperceptible; but that does not necessarily follow, since the tide in the open ocean is merely an alternate rise and fall of the surface, so that the motion, not the water, follows the moon. A bird resting on the sea is not carried forward as the waves rise and fall: indeed, if so heavy a body as water were to move at the rate of 1,000 miles in an hour, it would cause universal destruction, since in the most violent hurricanes the velocity of the wind hardly exceeds 100 miles an hour. Over shallows, however, and near the land, the water does advance, and rolls in waves on the beach."

Springs, rivers, inland seas, and lakes follow in their turn the ocean; and each is treated in the same judicious way. No more is said than is necessary to the understanding of these subjects in their proper relations; whilst every fact is stated in a lucid and interesting manner.

The inorganic world having been brought under review, the organic beings that cover the surface of the earth are next noticed. The consideration of the Floras of the various parts of the world are preceded by a kind of vegeto-physiological introduction. It is here that we observe the failure of Mrs. Somerville's powers to do equal justice to her whole subject. The sketch of the plant as a living organism is most physical and one-sided. We are told in the beginning that "the vitality of plants is a chemical process entirely due to the sun's light; it is most active in clear sunshine, feeble in the shade, and nearly suspended in the night, when

plants, like animals, have rest." We have seen the term "vitality" objected to as a cause in the phenomena of vegetation,—but we have certainly never before seen the statement so broadly made, that "vitality is a chemical process." And if vitality be "entirely due to the sun's light," how can this be reconciled with what is subsequently stated,—that "when a seed is thrown into the ground the vital principle is developed by heat and moisture"? The following passage, although what the authoress wished to say might be guessed at by the vegetable physiologist or chemist, is anything but intelligible or correct.—

"Ammonia enters plants by their roots along with rain-water, and is resolved within them into its constituent elements, hydrogen and nitrogen. The hydrogen aids in forming the wood, acids, and other substances before mentioned; while the nitrogen enters into every part of the plant, and forms new compounds: it exists in the blossom and fruit before it is ripe, and in the wood as albumen; it also forms gluten, which is the nutritious part of wheat, barley, oats, and all other cerealia, as well as of esculent roots, as potatoes, beet-root, &c. Nitrogen exists abundantly in peas, beans, and pulse of every kind; quinine, morphia, and other substances, are compounds of it: in short, a plant may grow without ammonia, but it cannot produce seed or fruit; the use of animal manure is to supply plants with this essential article of their food."

No introductory matter of this kind takes place with regard to the animal kingdom,—and perhaps it is as well left out. Many of the chapters in this department of the subject display great research and are carefully written. We feel it, however, to be our duty to point out the very careless manner in which the press has been corrected for the scientific names both in zoology and botany. "Cujapute" for *Cajuputi*, "Humeria" for *Humiria*, "Malviaceæ" for *Malvaceæ*, "laniaria" for *laminaria*, "venussi" for *vanessa*, "parnassus" for *parnassius*, are only specimens which we have glanced upon in opening the volume at random.

The work concludes with an outline of the distribution of man on the surface of the earth—with a glance at the various faculties by which he has gained ascendancy over external nature.

Germany, England and Scotland; or, Recollections of a Swiss Minister. By J. H. Merle D'Aubigné, D.D. Simpkin & Co.

It has been said, on some authority, that the Philosopher, like the Poet, is born such;—and that there are minds which from the want of native capacity can never be brought to consider subjects in a philosophical spirit. A philosopher is one who so loves truth that he desires the utmost liberty for its manifestations. He is opposed to Sectarianism in every shape. Dr. Merle D'Aubigné, as our readers are well aware, shrinks from the exercise of philosophic freedom, and will in no wise consent to be wiser than Calvin or Luther. The latter is to him, indeed, a sort of idol. He will see no more than Luther saw, know no more than Luther knew:—and accordingly he belongs to Luther's age rather than to his own. He visits Germany, and is scandalized by the Rationalism which he there finds and the small regard in which the special dogmas of her religious reformer are held. He travelled night and day (such was his enthusiasm) to arrive at the castle of Wartburg in time for the jubilee in celebration of the memory of its former captive; but the young men assembled in honour of the occasion were engaged far less with "the faith of Luther than the reveries of demagogues." The tenets of the Lutheran church, he declares, are misunderstood by most of her ministers and doctors; and he felt, he says, that he, as a Calvinist, "was more of a Lutheran than the

Lutherans themselves." Nor does Dr. D'Aubigné perceive in these words how he pronounces his own condemnation,—how he was thinking and acting according to the letter rather than to the spirit of his master's writings,—how he was opposing the very principle of reformation and progress by himself standing still or going back while the world is pressing onward.

It was in the year 1817 that Dr. Merle D'Aubigné first visited Germany. The result of his experience on that occasion he gives in the form of an axiom—one which he frequently repeats:—"In Germany," he says, "there is a science, but no church." Instead of a congregation, he found Individualism—and he therein imagines all manner of misbelief and tendency to disunion. In his eyes Ronge is not only a rationalist but an infidel. The new Catholicism he condemns as an anti-ecclesiastical movement—"a jovial anti-papistical club." Nevertheless, he ventures to think, with Dr. Gervinus, that "German Catholicism may perchance only give to Protestant Rationalism the strength to constitute itself a regular community;—the apostles of which, it would seem, are men of no less mark than Goethe, Voss, Wieland, Schiller, Lessing, and Herder. In a word, our author believes—and shudders at the prospect,—that the literary spirit of the age may pass into the religious, and so leaven as completely to modify it.

In England Dr. Merle D'Aubigné stands aghast alike at our Puseyism and at our Latitudinarianism. The State, especially, has, he thinks, gone too far in its dealings with the national church.—But these are all matters out of the scope of the *Athenæum*: and to such speculations our readers will doubtless prefer the author's first impressions of London.—

"On approaching the capital, my wondering eyes looked down from the carriage into innumerable narrow streets of small houses, all of uniform and mean appearance, blackened with coal-dust and shrouded by a smoky atmosphere. Such is the gloomy avenue which leads to the delightful parks of the metropolis, its superb squares, magnificent bazaars, and rich palaces. What crowds in the streets, what bustle, what hurry! These carriages, public and private, almost as numerous as the foot passengers; that dazzling display of every production of British industry, and of the most distant lands; those forests of ships, motionless in their immense docks; the steam-boats, which, like a weaver's shuttle, incessantly ply up and down the Thames with inconceivable rapidity, taking up and setting down at every pier a fresh cargo of breathless passengers,—everything you behold tells you that you are now in the capital of the commercial world. If the German feeds upon the ideal, the practical is the characteristic of Great Britain; I say, Britain, because most of what I say here of England is applicable to Scotland also. Reality, action, business, bear away in the politics, the industry, the commerce, and, I will even say, in the religion of the English. Yet this practical tendency which characterizes England is not selfish, as might have been expected. The large scale on which the people work gives a certain scope and grandeur to the imagination. The habit which the English have of forming into parties, and of looking constantly at themselves as a nation, is opposed to a narrow selfishness; and a more elevated sentiment struggles with this vice in a large portion of the people. Perhaps, one of the things that strikes a stranger the most on his arrival in London, is not the nobility but the common people; their strength, their energy, their quickness, their skill, their civility, and, above all, their calmness and silence during their unceasing activity. They are all alive to what they are about, and they are clever at it; you can see this in the carriages, the ships, and especially in the railroads. The skill with which an English coachman drives you through the streets of London, among thousands of vehicles, without ever jostling you, is inconceivable. • • If I speak thus of the common

people, what shall I say of the statesmen of England, of her sailors, of her warriors?—of that character of simplicity and grandeur which strikes every impartial beholder, and of which they have lately given such remarkable instances? The constitution of Great Britain, the balance of her powers, the slow but sure energy of the universal thought of the people,—all this is so beautiful, that we cannot but recognize the Master-hand. * * I observed in England one thing, that the people talk much less of liberty than we do on the Continent, but practise it more. This is quite natural: when we possess a thing, we mention it less frequently than when we are in search of it. The young men, who play so important a part in Germany, and even in France and other countries, do not so in England. It is not for want of spirit in the English youth—they have even rather too much; but it is confined in the preparatory sphere of schools and colleges, and does not display itself in public business. Influential institutions satisfy this people. The young men know that their turn will come, and they wait quietly. Among a people deprived of public institutions, vigour is often misplaced; it is forced forward in youth and exhausted in riper years. In England, on the contrary, it is disciplined in youth and exerted in manhood. On the Continent, paternal authority is much shaken; in Britain the parents, generally speaking, know how to keep their children at a respectful distance; and this is a great element of strength for a nation."

Dr. Merle D'Aubigné, however, detects faults in English society.—

"The search after the comfortable and the fashionable is carried to an excess, which often detracts from the search after enjoyments more intellectual, more spiritual, and more pure. Houses, clothes, the table plate, equipages, powdered footmen, are all made and organized in such a manner as to attract attention and even surprise; and one of the pleasures of the nobility and gentry is to drive every day through Regent Street, Hyde Park, and elsewhere, with a parade of horses, carriages, and liveries. This is beneath such a people. True, my opinion is only that of a foreigner, and I merely state my doubts to the children of Britain. I speak freely of their faults, but it is for them to decide; I accept by anticipation the verdict of the wise among their own people. It has always appeared to me that there is in all this a certain littleness of mind, and that England would be greater without her fashionable slavery. One would think that, in order to buy their liberty in the gross, the English make themselves slaves in detail—slaves to fashion. The Queen, powerless among her people, is an autocrat in her court."

The great want of England our author discovers to be a system of popular instruction. Here "the rivalry of the different Christian communions opposes the good they would wish to do;"—the fact being, as regards the Church, that "a former will not be punished by a present cannot."

In Scotland our author is severe on the lairds who make a desert of their estates; and compares them with the landed proprietors of England and Switzerland who carefully provide for the continuance and welfare of the surrounding and dependent population. But—

"As to the instruction of the people, it is much more generally diffused in Scotland than in England. The Bible and the Catechism are familiar to every Scottish child. Scotland, Holland, and our French Switzerland, which are the three countries in which the Reformation was the most complete and the most pure, are also of all the countries of Christendom, nay, even of the world, those over which intellectual culture is the most universally spread. I have entered a poor hut in the Highlands, built of a few rough stones, scarcely rising above the ground, and roofed with turf, and beside which one of our chalets would be almost a palace; and I have found in it people of pleasing manners and of a remarkable cultivation, which formed a striking contrast with their poverty."

Our author's views, it will be seen, are far too much under the dictates of a preconception to be profound. The notion of an especially well educated Scottish populace has recently undergone some correction,—to which his mind wants

the key. His volume concludes with a *résumé* of Scottish history; in which all the calumnies against Mary Stuart are unreservedly repeated—and without any reference to the testimony that opposes them or any allusion to the doubts on the subject. This fact alone might serve to illustrate the merely dogmatic character of the work before us. We have only to add that the writer's defence of the Free Church in Scotland is both enthusiastic and eloquent. Dr. Merle D'Aubigné, indeed, is always in earnest,—the narrowness of his creed serving to intensify his zeal.

Memoirs of Jérôme Paturot.—[*Mémoires de Jérôme Paturot. Patented Electeur et Eligible*]. By Louis Reybaud. Paris.

THESE volumes contain what may be called the "Grandeur et Décadence" of the fortunes of Jérôme Paturot. They who have followed with interest his early struggles in his 'Search for a Social and Political Position' [see *Athen.*, No. 916],—and seen how through many vicissitudes and perils he finally obtained shelter "under a cotton nightcap"—will have perhaps imagined that he had nothing further to do than live content and enjoy the satisfactory condition at which he had arrived as head of a flourishing hosiery establishment in the French capital.

But the desire of fame is insatiable. He who has begun to whisper secrets into the ear of the public is pretty sure to continue his confidence: and accordingly, M. Paturot here takes up the pen to communicate in autobiographical fashion his experience of public and private life under what now appears the remote historical period of the reign of the Citizen-King.

Ambition, that glorious fault by which the angels fell, is still busy at the heart of Jérôme. It first manifests itself innocently enough in the improvement and decoration of his shop—in making the old signboard give place to a new, nutwood to mahogany, oil to gas, &c.; and then urges him to a step more equivocal, the dismissal of his old shopmen for others "in the flower of their youth and with the most fashionable beards."

Madame Paturot is a genius. Not only has she "developed the flannel waistcoat from its rudimentary condition and brought it into harmony with the human form," but she has worked wonders in the art of *stuffing*, and furnished the gods and goddesses of the Opera with whatever is requisite for the perfection of their contour. The connoisseur who worships the beauty of outline exhibited in the Ballet dreams not of what he owes to the talents of Madame Paturot and the virtues of wadding.

Ministering thus at once to the useful and the agreeable, Monsieur Paturot is progressing rapidly on the road to fortune, when he meets with his Mephistopheles in a certain Oscar, an artist of the "hairy school," who exhibits landscapes resembling poached eggs and spinach, and paints portraits *ad infinitum* of Louis Philippe for the delight of the then loyal communes of France—assuming with reference to this branch of his business the title of "Painter in Ordinary of his Majesty." Finding that they agree admirably on all æsthetic subjects, the too-confiding Jérôme Paturot introduces the painter to his house, where the latter speedily established himself as an inmate:—and "now farewell the tranquil mind!" The insidious Oscar suggests to Jérôme that he marvellously resembles Napoleon; assists him to win his election as Captain of the National Guard; and thence tempts him step by step on to a giddy height, where the hosier's shop, on which the whole glittering fabric rests, becomes invisible. Be-

hold him at length a guest, the most loyal of guests, at the table of the Citizen-King.—

Even now, when all my illusions have fled, there is something soothing and consoling in the remembrance of those illustrious banquets,—those incomparable gravies. A certain class of pamphleteers have been pleased to throw out insinuations against the style in which the royal table was served, and to devise all sorts of detestable picaresqueries on the subject. Now, I am not partial to the use of torture—I have none of the blood of Nero or the gall of Marat in my composition; but I must say, I could with pleasure see these villains ascend the scaffold. Had they once approached the table which they thus depreciate—had they but once moistened their throats with that velvet Burgundy and that incomparable Lafitte—had they studied those roasts and those side dishes, reviewed the game and the poultry and the fish, investigated the *hors d'œuvres*, and rendered themselves familiar with the sweetmeats—I could but pity their want of taste and of natural sensibility. But they cannot entrench themselves behind the natural depravity of their organs,—for they know not the dishes that they calumniate. They have never tasted—nay, not so much as smelt—the dainties that they thus pursue with their execrable jokes. And this—the way in which history is written!

The organ of veneration is, as our readers perceive, finely developed in M. Paturot; and his devotion is rewarded by the still higher honour of an invitation to a ball at the Tuilleries. After many lessons from the painter "of the hairy school," and many dressed rehearsals of the part which he would have to play at court,

The day of the *fête* arrived, and with it fresh miseries. It was 10 o'clock at night, and the hairdresser had not arrived for my wife, and I was still expecting my shoes. Servant after servant was sent off to hasten the loiterers. At length, after many vexations and explosions of impatience, at 11 o'clock we set out. But we were not yet at the end of our troubles. To arrive at the Carrousel, it was necessary to fall into the line at the end of the Rue Rivoli. The carriages were crawling slowly on, and the sky was pouring down a torrent on the pavement. The length of the *queue* was enormous; and I was on the point of telling my coachman, in despair, to drive home again, when we perceived the slight of steps that was to bring us into port. The staircase was as crowded as the street. We ascended slowly, step by step, and soon found of how little service our preliminary studies were likely to prove in practice. Swords crossed, and trains got entangled in the legs of the cavaliers with a sort of wilful obstinacy. Before we had reached so much as the door of the apartments, we were already rumpled and spoilt; but at length, by the exertions of the attendants and some movements of the elbows, we made our way to the grand saloon where the king and queen were standing. I had bestowed infinite pains on the preparation of my bow. I executed it most happily, and added a "Sire!" the intonation of which was perfect. But when I raised my head to enjoy my triumph, his Majesty had turned his back and was talking to some ambassador from the North. That "back" poisoned the *fête* to me.

On consideration, however, Jérôme's loyalty is proof against this disappointment. He considers that Majesty has to perform three thousand salutations, succeeding each other "as fast as the strokes of the piston in a steam-engine"; and instead of resenting the neglect of his "Sire," he begins to pity royalty thus condemned to hard labour, and to marvel at the gift of perpetual smiles which Heaven has granted to royal muscles.—

And when I watched the passage of those furrowed dowerers and foolish peers, the faces fat and lean, wrinkled and toothless, imbecile and vulgar, that followed in an interminable file, I wondered that any human head could avoid turning at the spectacle and the suffocating heat and the mingling of a thousand odours. The eye was bewildered in a maze of jewels and plumes, and ribbons and epaulettes, and bare bosoms and shoulders, and lace and embroidery, and stars and orders, and German

English garters,—moving perpetually in all directions, and forming rivers of gold and silver. What luxury! Gracious Heaven, what significance!—And to find myself there, elbowing the Marshal of France, in the midst of the greatest names of Europe and the finest diamonds in the world! It was an honour that no Paturot in the world before me had ever enjoyed. Let none say that the Revolution of July was an abortion. Has it not introduced us to the Tuileries?

Then we have M. Paturot in another character. Connected with the political world by his epaulettes—for he has become chief of his battalion—and with the industrial by his shop, he is summoned to give evidence before a commission sitting to inquire into the state of the French manufactures; and has an opportunity, then, of proving that his patriotism is as sound as his loyalty. His political economy is exemplary.

There are in political economy two schools: one of which I shall call the *humanitarian*, to show my contempt of it—the other is the French school. The *humanitarian* school is sold to the foreigner. It delights in the cachemires of India, the mackintosh of England, the furs of Siberia, the hemp of Russia, the iron of Sweden, the dates of Barbary, the oranges of Monaco. Souls devoid of nationality! They would not hesitate to clothe and feed and warm themselves with the produce of a foreign soil. They can of course find specious pretexts enough. They pretend that we should accept that which is good from whatever quarter it may come—that what is good best and cheapest should have the preference in the market. It is not thus that the French school reasons. That school would wear druggut instead of cloth, to encourage the manufactures of our own country—would even consent to buy druggut rather than cloth. Such is its devotion, that it considers French chicory superior to Mocha coffee,—and would rather give a fever patient French arsenic than American quinine.

In the midst of his peroration in favour of these noble-minded economists, M. Paturot is troubled by there collection of certain bales of British flannel to be found in his warehouse. But what can he do?—this is obviously his customers' fault. His examination before the Commissioners presents a tempting opportunity for making a speech, and gaining a little literary reputation.

Question by the Commissioner.—What have you to say, M. Paturot, on the subject of woollen fabrics? Consult your experience and your memory.

Answer.—Woollen fabrics are, as their name implies, derived from the spoils of flocks; and in this sense the question concerns at once manufactures and agriculture. From the point of view from which I regard it, I should say it was commercial also. Agriculture, commerce, and manufactures are, therefore, all interested in the woollen fabric. In going back to the most remote periods of history, we find the same phenomenon. The capitularies of Charlemagne, the edicts of Sully, bear witness to the fact.

Question.—The Commission would prefer hearing of the condition of this manufacture in our own time.

Answer.—I am coming to that. We distinguish various kinds of wool—long wool and short wool; and Nature, who is sometimes capricious, has not given to France the monopoly of the sheep. She has placed the merino in Spain, in Derbyshire, in Saxony—all which are foreign countries: but I cannot pardon these flocks for flourishing out of France. I acknowledge no sheep but the sheep of France.

Question.—This feeling does you honour, M. Paturot. But would it not be for the advantage of our wool to introduce some of the finer foreign sheep?

Answer.—What!—and the French shepherds, M. President? and the French pastures—and the French shepherds' dogs? No! M. President! There I am inflexible! *Vivent les moutons Français!* I will lay my head on the block if that be necessary. My ancestors, M. President, were *Auvergnats*—and they carried the culture of the *mouton*

Français even to fanaticism. I myself, in my youth, knew only the sheep of France. It is an intelligent creature, full of grace and fascination. May my tongue cleave to the roof of my mouth ere it shall utter a syllable disagreeable to that quadruped! *Vive le mouton Français.* Nourished on the soil of France, it alone can have a just claim to the French wool market, as well as to the glorious privilege of supplying the French nation with chops.

Not less eloquent is M. Paturot when questioned on the subject of cottons. France, it is true, does not at present furnish raw cotton,—but "there are specimens in the Jardin des Plantes that have a very promising appearance." Besides, if she does not grow cotton, she is unrivalled in cotton night-caps.

She is not, and must not be, at the mercy of foreigners for an article of such signal importance. Let us for a moment suppose the cotton night-cap become an exotic,—for which we depended on other nations. Let a war break out, and you would not have a night-cap in France! The enemy would attack you by a universal cold in the head.

Commissioner.—This objection is not without force; but it appears to the Commission that you have not reliance enough on the intelligence and activity of the French nation. When I speak of the introduction of foreign nightcaps, I mean of course under a system of differential duties. Now, if with this protection the French nightcap could still not compete with those of foreign countries, what would you say to a manufacture so feeble?

Answer.—M. President, with all possible respect I am compelled to say that you are falling into a political economy that is both humanitarian and revolutionary. Our cotton nightcaps are the first in the universe, and it is for that very reason that we cannot endure to admit any other.

The Commission will consider this argument.

M. Paturot. I appeal from this Commission. I see that there are in it enemies of the national industry,—who will not render to the national nightcap the justice which is its due—who are seeking to eliminate it from the national market. I appeal, I say, from this Commission,—and I demand formally the head of the President!

This sally procured for M. Paturot a well-deserved testimonial from "the trade;" but not content with the honour thus achieved, he becomes a *Mæcenas*—protects the arts at the instigation of Oscar, builds a mansion in the style of the middle ages—and takes a high degree in the school of fashion by passing a flirtation, or something more, with a great lady, a Russian princess, the owner, as he is informed by Oscar, of vast estates in the Ukraine, as well as of twenty-two thousand serfs and three hundred thousand sheep; but whose revenue has unfortunately at the moment been sequestered by the Emperor,—so that she is reluctantly compelled to be indebted to M. Paturot for considerable advances. In the saloons of the Princess—filled, of course, with all the "best society of Paris"—Jérôme meets with a young, a very young, gentleman of a most elegant exterior, with faultless boots and irreproachable waistcoats, whom, to his great surprise, he discovers to be in possession of great political influence; "being no other than a great man's private secretary, who governs the minister, who governs the Council." It was difficult to believe that such power could have fallen into such hands, and that the destinies of the country could in any way depend upon this beardless boy; but so it was. "It was the duty of this youth to make picturesque tours through the *soirées* and theatres, and balls and concerts of the capital—to have his foot in every considerable house and his ear at every keyhole." The secretary encourages M. Paturot—whose loyal devotion to the Court has not passed unobserved—to put himself forward as a candidate for a seat in the Chamber, in opposition to a certain obnoxious Deputy whom the Government desires to oust—one of those dis-

agreeable fellows who are always talking about economy. His new friend, the secretary, assures him that "the King's Government will watch the progress of his election with the greatest interest."

"Do not spare anything on your side, M. Paturot. As for the Administration, it will do its duty. I will speak to the minister this very day. Turn out M—, what a triumph!"—"I will get the shepherds of the *arrondissement* to stone him," I exclaimed with fervour.—"No, M. Paturot; no violence; the Government of His Majesty rejects methods of that kind. The *arrondissement* is at the present moment in a very good condition to see its error in having for six elections persisted in choosing an opposition member. During all that time we have taken care to do nothing for it. That is what we call taking the place by famine."—"Oh, science of government, how I recognize you in that policy!" I exclaimed with transport.—"In the various communes," pursued the secretary, "there are clocks out of repair—roads to put in order. A few weeks before the election, we will take our measures."

Thus powerfully supported, M. Paturot is duly returned; and in the Chamber he has another opportunity of displaying the oratorical talents of which he has already given some specimens. Unfortunately, his originally narrow education has left him the prejudice that it is necessary to know something of a subject before speaking about it; and with a view to his parliamentary education he passes in review some of the most distinguished speakers (M. Berryer, Odillon Barrot, Lamartine, Guizot, and Thiers),—of whom he gives sketches, and the last-mentioned of whom he resolves to take for his model.

What pleased me especially in this orator was, that he always took up a question from the cradle, and never left it until it was completely exhausted. He always seemed to think—and God knows with what good reason!—that the Chamber was ignorant of the very A B C of the matter in hand. In that he showed his profound knowledge of human nature. Thanks to him, I only just missed understanding the question of the East. I learned that there exists on the banks of the Bosphorus a town called Constantinople, and that among the inhabitants the Turks are in a majority. A little more, and I should have found out what is meant by Egypt and Syria!

We have not space to follow M. Paturot through his parliamentary career, nor to trace the successive steps of the downward progress of his fortune,—far more rapid of course than his ascent. In a moment of frailty he is tempted to vote against ministers and join a party which enjoys a triumph of only forty-eight hours.

Adieu then to ministerial favour, to official influence, to profits and honours! It was too hard for me to unseat some of my colleagues who had a foot in each camp, who could dine with the ministry and sup with the opposition; it was a feat too giddy and perilous for my poor head, and required an appetite that belonged not to my constitution.

The shop, it is needless to say, has suffered grievously from the absence and inattention of Jérôme and his lady, from the house in the style of the middle ages, from the election, the parliamentary dinners and reunions,—not to mention the friendly advances to the Russian Princess, who has suddenly vanished from the eyes of men, and the system of forced loans vigorously applied by M. Oscar, whose friendship has naturally cooled a little as Jérôme's star declined from its zenith. To him, however, the Deputy is indebted for a useful suggestion.

When I had finished the melancholy history of my financial embarrassment, Oscar kept his eyes fixed on me for some minutes, with a gravity quite unusual with him.—"Jérôme," said he, at length, "you are but a child. You have yet a certain amount of commercial credit, and you are a Deputy—here are two infallible means of making a fortune

ten times over."—"I should like to see you try, Oscar."—"I! Make me a Deputy for twenty-four hours, and I'd be rolling in gold and diamonds. But you, poor fellow, you wouldn't find water in the sea. A Deputy and in want of money—pooh, pooh!"—"Don't beat about the bush, Oscar, but tell me at once what I can get by being a Deputy? A place, perhaps, say of ten—fifteen—twenty thousand francs a-year, which would be enormous. That wouldn't save me."—"A place!" said he contemptuously, "Jérôme," he added, solemnly, "What I am going to say must remain a secret between us two. Swear it."—"Very well, I swear."—"Jérôme, do you know a certain ingenious instrument by the vulgar designated a telegraph?"—"Certainly."—"Well, representative of the people, there are millions of francs at the end of the arms of that little piece of mechanism. I shall say no more. Perhaps I have already said too much. That telegraph is a droll fellow, and might bring an action against me for defamation."—"Nay, Oscar!"—"Jérôme, I will remain a stranger to politics. I set a value on my head—seeing that it is the only thing I have to dispose of. But I repeat, cultivate the acquaintance of the telegraph—there are advantages in it."—"But how, Oscar! What do you mean?"—"What do I mean? My dear sir, I stand in a certain position. The director of the Fine Arts has promised me two hundred and seventy portraits of his Majesty to paint—for so many different communes of France."—"Good Heavens, you can surely count upon my discretion!"—"Well, then, listen Jérôme. In the second *arrondissement* of Paris there is situated an edifice in the Greek style of architecture denominated the Bourse. Combine those two words, the Telegraph and the Bourse—the Bourse and the Telegraph—and see if you can draw no inferences from them."

Jérôme is at length enabled to perceive the brilliant perspective opened to him by the painter, and for some months carries on his operations very successfully. Several little pieces of intelligence transmitted at the right moment have the happiest results. But acting boldly on some news conveyed in a despatch of which he has accidentally caught sight while making a familiar morning call on the minister—his second fortune is swept away in a moment, and the house of Paturot falls to rise no more. The despatch, it appears, was dated several years back,—and had been laid on the table in the minister's dressing-room only in the quality of a piece of waste paper for his convenience in shaving.

Another shifting of the scenes brings us by a natural transition to a debtors prison; in which M. Paturot—who we perceive is, under the influence of adversity, becoming a sadder and a wiser man, makes the following reflections.—

"The prison of Clichy is not in itself mournful or terrifying in its aspect,—and its situation commanding a view of Paris and overlooking the gardens of the neighbourhood is far from disagreeable; but there is something oppressive in the very thought of a prison, and the appearance of the locks, the bolts, the turnkeys immediately recalls a captive to the dismal reality of his position. In the life of a malefactor the prison occupies a regular place; he enters it as a matter of course, and quits it with little satisfaction. He had attacked society knowingly, and society has avenged itself and shut him up like a dangerous animal. That is all fair. But imprisonment for debt is the true torture. Whether poverty or imprudence have brought a man to it, it has almost always fallen on him quite unexpectedly; and most prisoners of this class have wives and children dependent on them for support to whom their imprisonment is almost a sentence of death. It is a legacy of barbarous times. With a few exceptions, it reduces itself to this—to demand money from a man and at the same time to place him in a situation in which it is impossible for him to get it. * * On first entering my new domicile, I was terrified to find in it so large a proportion of the working classes. These make the great bulk of the inhabitants of the prison—these and the small tradesmen and minor industrial classes of Paris. We are too much accustomed to regard Clichy as the purgatory of spend-

thrifts and prodigal sons;—these form in reality the smallest part of its population.

Our friend Jérôme is released by the exertions of his Malvina—who, notwithstanding her little wanderings in "Vanity Fair," has remained sound at heart. Her diamonds and cachemires and all the appurtenances of the pomp and state of the great house of Paturot in its days of glory are swept off to the Mont de Piété—a philanthropic institution where persons in distress may obtain money at the interest of 60 per cent. per annum. Jérôme finally obtains a small place under Government, and retires to the enjoyment of domestic happiness in a cottage in the country. Oscar continues to execute portraits of his Majesty; and Rumour says that the Princess Flibustofskoi is keeping a café on the banks of the Neva,—and that a magnificent nobleman who accompanied her, the Field-Marshal Tapanowitch, rinses the glasses of the establishment.

OUR LIBRARY TABLE.

Observations on the Duties and Responsibilities involved in the Management of Mints. By Major Smith, Madras Engineers. Though making money is everybody's business, coining it is the affair of very few. Major Smith, Master of the Madras mint, knows this well, and expects few readers. But, nevertheless, he gives such an account of the matter as would interest most persons; and though few would send for the book, most of those in whose way it falls will look through it. This is old Sam Johnson's distinction:—"But, sir, is it not worth seeing?"—"Yes, sir, but not worth going to see." The Indian mints have an immense business to transact; and all who have anything to do with bullion or its transmutation into coin should read Major Smith.

An Autobiography; Letters and Remains of the Author of 'The Listener.' The life of Caroline Fry (afterwards Wilson) told in her correspondence as edited by her husband.

The Treasury of Natural History. By S. Maunder.—The name of the compiler justifies some confidence in the care and accuracy with which this "popular dictionary of animated nature" has been put together. It is lavishly illustrated—there being more than eight hundred wood illustrations; and Mr. Maunder takes credit for having discriminated the "zoological characteristics that distinguish the different classes, genera and species." Some general information is added, calculated to lighten the scientific gravity of the work.

Rising in the World. By T. S. Arthur.—A little story of two friends, whose fortunes are contrasted,—illustrative of the moral conveyed in the title. An honest physician and a dishonest lawyer are the heroes. The course of the tale is obvious,—but it is neatly executed.

A Brief History and Description of the Cathedral Church of St. Peter, Exeter. By J. W. Hewitt.—Useful to the visitor,—but not sufficiently developed to invite independent perusal.

Sylvan's Pictorial Handbook to the Land o' Burns.—*Sylvan's Pictorial Handbook to the Scenery of the Caledonian Canal, the Isle of Staffa, &c.*—Guide-books illustrated with poetic extracts and some pleasing engravings from original sketches by T. and E. Gilks. The latter is accompanied by a map. Both are characterized by a genial enthusiasm, calculated to make them pleasant companions.

Helps to Hereford History. By J. Dacres Devlin.—A book by a boot-closer who, coming to Hereford for his health, worked at his trade and inquired into the history of his new *locale*. Here we have an account of the ancient Cordwainers' Company of that city, with a prospectus for a series of volumes on trade in general. Much of this treatise has been previously published in the *Hereford Times*. The author appears to be a man of energy and promise.

Transactions of the American Philosophical Society. Vol. X.—The contents are.—Observations made at Hudson Observatory, by E. Loomis—on the Magic Cyclovolute (a magic square composed of magic squares), by E. Nutty—on the *Coleoptera Longicornia* of the United States, by S. Haldeman.—Description of new Freshwater and Land Shells, by T. Lea.—New Perpetual Calendar, civil and eccle-

siastical, Julian and Gregorian, by W. M'Clintock. This last article is a very ingenious production, and presents the easiest *tabular* mode that we have seen in any compressed form for finding as well Easter as the day of the week answering to any given year and day of the month. It dispenses altogether with the Dominical letter.

Miscellaneous Examples in Algebra. By T. W. Colenso.—*Examples in Algebra.* By T. Wharmby.—Both likely to be useful. A teacher will have all the books of examples he can get.

Railway Scale. Under this title, without author's name, appears a map of England showing actual railroads, and those which the author would recommend on the supposition that 5,000 miles of road are to be constructed in fifteen years.

Railway Engineering. By T. Baker.—These earthworks will be the death of us. What with excavations, and cuttings, and embankments, we feel buried alive. Mr. Baker asserts that he corrects some errors of his predecessors. By what formula, we should like to ask, did Hamlet's ghost work his way under ground?—and how much did he charge per cubic yard for the cutting?

Discourses on some Peculiar and Unusual Texts of Scripture. By the Rev. J. Cochran.—The pulpit has its humours as well as the stage,—and the pulpit are of them. The ten discourses are on "Lovers than," "Clouted Shoes," "Hole in the Wall," "Knives," "Devils in the Swine," "Time to Dance," "The Turned Cake," "The Borrowed Axe," and "Amen." The preacher confesses that his object was by such selection to attract attention. At the risk of being grotesque, he has secured novelty and freshness. He has also gained an opportunity of imparting specific knowledge and some specialties of learning. On the whole, we may commend this "old" volume for something more than its mere singularity.

LIST OF NEW BOOKS.

Allison's (A.) Epitome of the History of Europe, postvo. 7s. 6d. cl.
Barry's (C.) The Palace of Westminster, Part I. folio, 3s. 2nd.
Bohn's Stan. Lib. Vol. XXXVIII. Muzel's 'Germany,' Vol. I. 1s. 6d.
Ciceronis Orationes Selecte, by Anthon, new edition, 12mo. 3s. 6d.
Cox's (E. W.) The Practice of Poor Removals, 12mo. 3s. 6d.
Cochran's (Rev. J.) Family and Private Devotion, 4th ed. 8s. 6d.
De Pomerey's French Companion and Interpreter, 12mo. 3s. 6d. cl.
Ellis's (Mrs.) Social Distinction, Vol. I. postvo. 8s. 6d. cl.
Gillman's (Caroline) The Sybil, 12mo. 8s. 6d. cl.
Gray's (John) Lectures on Money, 8vo. 7s. 6d. cl.
Harding's (A.) Epitome of Universal History, 12mo. 5s. 6d. cl.
Hudson's (H. N.) Lectures on Shakespeare, 2 vols. 12mo. 18s. 6d.
M'Intosh's (M. J.) Chances and Counter Chances, 12mo. 7s. 6d. cl.
Milton's Poetical Works, illustrated by Martin, 8vo. 7s. 6d. cl.
National Cyclopaedia (The) Vol. V. 8vo. 5s. 6d. cl.
Pepp's Diary and Correspondence, new ed. Vol. III. postvo. 18s. 6d.
Pillans' (J.) Eclogues Carliane, 18mo. 3s. 6d. cl.
Ranke's (L.) History of Serbia, by A. Kerr, 2nd ed. 8vo. 15s. 6d.
Rechter's (The) Companion, 8s. Second Series, 1819, 32mo. 1s. 6d.
Saunders's Administration of Justice Acts, 8s. 12mo. 3s. 6d. cl.
Sedgwick's (Miss) Facts and Fancies for School Reading, squares, 2s.
Vocalist's Companion (The), Second Series, 32mo. 1s. 6d.
Watson's Scripture Treasury, new edition, 12mo. 3s. 6d. roan.
Wood's (W.) History and Antiquities of Ely, 2nd ed. 12mo. 15s. 6d. cl.

GRESHAM PROFESSORSHIP OF GEOMETRY.

August 22.

I should not have troubled you with a single remark on this subject had not your correspondent "Candidus" somewhat succeeded in mystifying one part of the question. "Is there, then," says he, "to be more spoliation?" He then proceeds to denigrate "the corrupt Ministers and Parliament of the third George" for "plundering Gresham College of its revenues;" and concludes with a flourish that would lead a simple-minded person to believe that the Corporation of London and the Mercers' Company are the most patriotic bodies in Christendom! Let us, however, test this pretension by an appeal to facts. These have been pretty fully developed in the work to which you have referred us—the *Mechanic's Magazine*; but I have gone to the originals, to which your cotemporary refers, and to some others besides,—though I have found little worth specific attention which that work has not noticed.

In the first place, then, it appears that the site and buildings of Gresham College formed no part whatever of the sources of revenue of that College. These "revenues" were to be derived from the *Royal Exchange*; and as long as this exists, the revenues remain intact. The alienation of the site and buildings of Gresham College has no more to do with this question than the Goodwin Sands has with Tenterden steeple. Whilst the Corporation and the Mercers' Company hold the source of revenue, they are not only in law but in honour equally bound, whether the Excise Office or Sir Thomas Gresham's mansion-house stand on the acre—and a

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half site between Bishopsgate and Broad Street. "Candidus" has, therefore, done no honour to his signature by such a civic perversion of history. The revenues of Gresham College are as yet untouched, not only by the corrupt Ministers and Parliament of the third George, but by all Ministers and Parliaments whatever—except the Guildhall Parliament and the Parliament of the "ell and yard measure."

Neither is it borne out that the Corporation was "plundered" of the Gresham estates; but directly the contrary. As far back as 1701, the Corporation attempted to obtain an Act of Parliament to enable them to dispose of Gresham College. The attempt was renewed in 1717, and then again in 1760. These attempts were unsuccessful; but they prove that the Trustees were bent upon alienating that property whenever an opportunity should occur. In 1767 the occasion offered itself; when the Government wished for a site on which to build a new Excise Office. But did the Government "plunder" the property of the Corporation? Let the Act of Parliament of 1768 answer this. The title of the Act (8 Geo. III. c. 32.) runs as follows:—"An Act for carrying into Execution an Agreement made between the Mayor and Commonalty and Citizens of the City of London, and the Wardens and Commonalty of the Mystery of Mercers of the said City, and Stamp Brooksbank, Esquire, Secretary to the Commissioners of His Majesty's Revenue of Excise, for the purchase of Gresham College, and the Ground and Buildings thereunto belonging; and for vesting the same inalienably in the Crown, for the purpose of erecting and building an Excise Office there, and for enabling the Lecturers of the said College to marry, notwithstanding any Restriction contained in the Will of Sir Thomas Gresham, Knight, deceased."

Can anything more completely prove that Gresham College was sold? Does this read like the Government taking forcible possession (or "plundering" the Corporation) of the property? But, further, the preamble of the Act most distinctly states that it was a deliberate bargain between the Government and the Gresham Trustees; and that "articles of agreement had been mutually entered into between" the parties specified in the title, bearing the date of December 10, 1767. Whether the bargain were favourable or not to the City, it was deliberately made on the part of the Corporation; and "plunder" is surely not quite the epithet to apply to the transaction—at least as regards the contracting parties on one side or the other. The public alone has been plundered in this transaction—not the Corporation and the Mercers' Company.

There are other circumstances brought to light by this Act of Parliament, which have never been cleared up by an honest explanation. Your contemporary, I see, has noticed some of them;—and I cannot but think with him that the more this transaction is examined the more suspicious does it become. I have, however, no wish to go further into the subject; being convinced that without access to the City and Exchequer records of the time every attempt to explain it upon reasonable principles must be unsatisfactory to the mind of an honest inquirer. No hypothesis, however, that I have been able to frame is materially different from that enunciated by one of your recent correspondents—that it was "a nefarious juggle."

I should not have troubled you at such length but for seeing that, in your last article, you apparently admitted the bold statement of "Candidus" to be founded on fact. The public, for whom the Corporation were trustees, appears to have been "plundered" of about 6,000*l.* a-year; and the Government and Trustees divided the spoil—with the secrecy, of course, with which other banded plunderers partition the gains of a nocturnal adventure.

VERAX.
* From the statement of our correspondent it would appear that instead of the Government plundering the City of London, Government and Corporation united to plunder the public of a fund which the latter had previously contrived to render useless. Our remark equally applies to this statement.—neither Government nor Corporation would have ventured on the transfer of the property if the College had been kept in activity. We do not make the reproaches addressed to our correspondent Candidus our own. It is impossible, even supposing

Verax quite correct, to say what view of the transaction may be justified by the private history of the same.

COINCIDENCES OF WORDS.

Extraordinary coincidences of all kinds are amusing, and some hardly credible. Those who are to follow us will not believe that the conversion of *Horatio Nelson* into *Honor est a Nilo* was accidental. They will argue that either the Admiral constructed the name out of the proverb after the battle, and assumed it instead of his own, or else that the formation of the proverb made him fix his thoughts on attacking the French in Egypt. They will do anything rather than admit what we know to be the fact. But there is another thing of the same kind, which is more complicated. The words *Princess Charlotte Augusta of Wales* were transformed, soon after she died, into *P. C. Her august race is lost, O fatal news!* This is not true, but at the time when the unfortunate Princess died it was very likely to be verified. It is accomplished only in the extinction of one line of the dynasty. Next to accidental play on words, come those which are constructed beforehand. The celebrated Latin lines, which read backwards and forwards the same—

Signa te signa; temere me tangis et angis:
Roma tibi subito motibus ibit amor,

have never had but a lame explanation of meaning. I propose that we, of the present generation, shall palm them on posterity as having been spoken by the present Pope to the people of Rome, meaning that if they do not attend to their religious duties, and leave off tormenting him into changing his politics, Rome will soon be in a state of convulsion. When first made they were attributed to the devil, on account of the ingenuity of their construction.

Some time ago a correspondent of yours forwarded a line which is both hexameter and pentameter, in right of doubtful syllables.—

Quando nigrescit nox, rem latro patrat atrox.

This is clever, but there is no occasion to suppose your correspondent has hoofs. If he had put together half-a-dozen such with connected meaning, the supposition might have been tenable.

Under the genus of coincidences come translatable puns. But a great many of these arise from a legitimate similarity of metaphor. Such is Colman's translation of Terence's "*Quid agitur?—statur*," into "What are you on?—my legs." The following is almost forgotten—that is, the English part only is remembered, though the Latin is the original. A person had received a present of fish from a prelate, but he expected wine with it; he says accordingly—

Mittitur in disco mihi pisces ab Archiepiscopo
Po non ponetur, quod Potus non mihi datur,

which was thus rendered into English.—

In a dish came fish from the Archbishop—

Hop shall not be here, for he sent me no beer.

In the riddle books the point is spoilt by its being rendered "Hop was not there, because," &c. The wit, such as it is, consists in refusing the poor prelate his hop, because he had not sent any beer.

There is a curious instance in which Latin, usually so brief a renderer of modern languages, fails in modern hands to preserve its reputation. The original is French, and runs as below; it was given to the celebrated mathematician (theologian, logician, decipherer, &c. &c. &c.) Wallis, by a Frenchman, in 1653, who had made it as a specimen of the felicity of his own language, and proposed it as a challenge.

Quand un cordier, cordant, veult corder une corde,
Pour sa corde corder, trois cordons il accorde;
Mais si un des cordons de la corde descorde,
Le cordon descordant fait descorder la corde.

Wallis himself not only made the following English version, but added two more verses (well known and often cited in books of amusement) which, again, some later Frenchman has turned into French. Often as this has been printed it has very seldom been given to its right author. It acquires some interest as the relaxation of so ponderous a doctor; Wallis was, in his day, the most remarkable union in one person of learning and invention.—

When a twister, a twisting, will twist him a twist,
For the twisting of his twist, he three twines doth intwist;
But if one of the twines of the twist do untwist,
The twine that untwisteth, untwisteth the twist.

So far all is common enough; but the attempt of Wallis to turn it into Latin is not so well known.

He was a perfect master of the language, as times went; nevertheless, imagine a Roman ropemaker having to use all that follows to make himself understood. It is true that Wallis expressly says he translated for a foreigner, who wished to see the precise meaning of the terms: still, we cannot imagine the ropemaker to have required the third part of what I now quote, on any pretence of explanation.—

Quum restitarius aliquis, conficiendis torquendo funibus jam occupatus, vult sibi funem tortilem contrahendo conficere; quo hunc sibi tortilem funem torquendo associat, tria contorta apta filamenta complicando invicem associat; verum si, ex contortis illis in fune filamentis, unum forte se explicando complicationi eximat; hoc ita se explicando disocians filamentum, funem torsione factum detorquendo resolvit.

Could not some of your correspondents turn the above into Latin at a less expense of words? We are reminded of Johnson's definition of *network*,—namely, "anything reticulated or decussated at equal distances, with interstices between the intersections."

Returning to Wallis, who has furnished so much of this letter, it might be noted as curious that he should have ventured on such a strange mixture of sacred and profane were it not that many instances exist of a jumble which would now be called highly irreverent. His "*Praxis Grammatica*," (added to his Grammar in 1674,) is under three heads: first, the Lord's Prayer,—secondly, the Apostles' Creed,—thirdly, the question of twining and twisting, with some other things of the same kind. If a verbal imitation can be achieved, he seems sure to do it. In the Hebrew which he writes *Tsaw la-tsaw, kaw la-kaw*, usually rendered "Precept upon precept, line upon line," he gives both the literal sense and the rhyme, in nearly the same number of letters, by "*law to law, saw to saw*." Then follows the story of him who was so properly styled *Archbish*.

Jumble, *quâ* jumble, is easily imitated. If I have not proved this already, let the following be both concluding and conclusive. In some of the published song-books, called warblers, minstrels, &c., it may be suspected that some of the songs have been written down by the compiler from hearing them sung. I have met with rather an amusing instance of this, as follows. There is a ballad beginning—

Oh! bring me but my Arab steed,
My prince defends his right.

A certain warbler's book, published four years ago, gives the second line thus:—

My princely Frenzi's right.

Of course it will strike every body that this "princely Frenzi" must have put the author in a royal rage, or will do so if he now sees it. MOMETES.

August 26.

OUR WEEKLY GOSSIP.

Our old London localities are fast passing away:

Where's Troy? and where's the Maypole in the Strand?

Messrs. Pullen & Son disposed on Monday last, "by order of the Royal College of Surgeons," of all that remained of Copeland's China Repository in Portugal Street, formerly old Lincoln's Inn Fields Theatre. We were present on the day of sale, for the sake of saying farewell to the yellow and red brick building with its old Queen Anne staircase and its massive patched timber roof. The scene was a suggestive one. Instead of finding Quin or Spiller in sock or buskin in what must have been the old painting-room at the top of the house, we had men with measured step treading this way and that—actor-like almost—but with a different purpose; and instead of seeing—

Cato's long wig, flowered gown and lackered chair, or hearing an heroic line from Fenton's "*Marianne*" (originally produced, by the way, in this very house) you had dealers from Horseleydown and Jews from St. Mary Axe anxious only to pick up a good load of timber at a cheap rate.

The theatre, now nearly level with the ground, was the third Lincoln's Inn Fields Theatre on the same site, and stood in Portugal Row, on the south side of Lincoln's Inn Fields at the back of what is now the Royal College of Surgeons. It originally extended as far back as the frontage of the houses on the south side of Lincoln's Inn Fields; but the chief entrance was in Portugal Row or Portugal Street, because the south side of the Square was of little importance when the theatre was built, and Portugal Row was, what it long continued to

be, a fashionable place of residence. We may see much the same arrangement in Piccadilly at the present day:—the Church of St. James's (built by Wren) presenting its best front not to Piccadilly (from which point it would now be best seen) but to Jermyn Street, then a fashionable street, and to the opening into the still fashionable St. James's Square. The first theatre was originally a tennis court, converted into the Duke's Theatre by Sir William Davenant, and opened in the spring of 1662, with new scenes and decorations—"being the first," says old Downes, the prompter, "that ere were introduced in England." Whenever Pepys, in his 'Diary' mentions the Duke's Theatre, he alludes to Lincoln's Inn. Here Betterton became distinguished; here Charles II. fell in love with Moll Davies; and the last Earl of Oxford with Betty Davenport; and here the company performed till November the 9th, 1671,—when they removed to Dorset Gardens, at the bottom of Salisbury Square, in Fleet Street. Lincoln's Inn Theatre was now closed,—and remained shut till the 26th of February, 1671-2; when the King's Company under Killigrew, burnt out at Drury Lane, played in it for the first time,—Dryden supplying a new prologue for the occasion. The company remained here till the 26th of March, 1673-4,—when they returned to their own locality in Drury Lane: and Davenant's deserted theatre became for twenty years more a tennis court again. Such is the history of the first theatre. The second theatre on the same site was "fitted up from a tennis court" by Congreve, Betterton, Mrs. Barry and Mrs. Bracegirdle,—and opened on the 30th of April, 1695, with (first time) Congreve's comedy of 'Love for Love.' The epilogue (spoken by Mrs. Bracegirdle) alludes to the former uses of the place.

Our audience which did once resort
To shining theatres to see our sport
Now finds us toss'd into a tennis court.
These walls but t'other day were fill'd with noise
Of roaring gamesters and your *dunne* boys;
Then bounding balls and rackets they encompass;
And now they're fill'd with jests and flights and bombast.

Cibber speaks of the house as "but small and poorly fitted up," and adds in another place that the alterations were made by a voluntary subscription—"many people of quality" contributing twenty and some forty guineas a-piece in aid of the general expenses. Here the company played for the last time on the 31st of March, 1704-5; and then removed to Vanbrugh's new house in the Haymarket, now the Opera House,—where they played for the first time on the following 9th of April. The second theatre was occasionally used after this for theatrical performances,—and was finally pulled down by the celebrated Christopher Rich; and the third theatre on the same site (the house sold by auction on Monday last) opened on the 18th of December, 1714. Rich had died a few weeks before the house was ready, and the prologue on the first night was spoken by his son dressed in a suit of mourning. The success of the son (John Rich) was very great. Here he introduced pantomimes among us for the first time,—playing Harlequin himself, and achieving a reputation in the part that has not been eclipsed. Here Quin played all his celebrated characters. Here, on the 29th of January, 1727-8, 'The Beggars' Opera' was originally brought out; and with such success that it was acted on sixty-two nights in one season,—and occasioned the saying that it made Gay Rich and Rich Gay. Here Miss Lavinia Fenton, the original Polly Peachum of the piece, won the heart of the Duke of Bolton, whose Duchess she subsequently became:—and in this, the third theatre on the same site, Rich remained till his removal, 7th of December, 1732, to the first Covent Garden Theatre, so called in the modern acceptance of the name. The house was subsequently leased for a short time by Giffard, from Goodman's Fields:—and in 1736 it was transformed into a barrack for 1,400 men. It was last used as a china repository:—and is now taken down to enlarge the museum of the Royal College of Surgeons.

We find in a Liverpool journal a more plausible version of an intended establishment at Birkenhead than that of the newspaper paragraph which we copied some weeks ago with an expression of doubt. The first statement was, that the Colosseum in the Regent's Park was about to migrate to the rising town on the Mersey; taking away one of the pleasant

places of the Metropolis for the artistic endowment of the far North. It is now alleged, with more probability, that a building is about to be erected, either in Liverpool or Birkenhead, for the purpose of exhibitions similar to those of the London Colosseum, and in connexion therewith. The northern building is, it is added, to be exactly the same size as that in the capital,—and is to be executed, in conjunction with a London artist, by Mr. Charles Reid, architect, of Liverpool.

There would seem to be, at length, a prospect that one of the hotbeds of pestilence long menaced by that shadow which the coming event of improvement throws before it in our metropolis is at length about to be seriously broken up—a private speculation, as usual, putting the first axe to the important clearing. The much-talked-of street from east to west, the very least of whose benefits would be that of relieving the pressure of the human tide along the Strand, is brought, to a certain extent, within the category of accomplishment by the increasing wants of King's College Hospital and a measure to which these have led. The Committee of Management are said to have purchased a large plot of ground extending from Carey Street to Clement's Lane, for the purpose of erecting thereon a new hospital on a scale adequate to the necessities of the crowded and unwholesome district around it,—thus making, as ever happens, the relief of human suffering in one direction incidentally the means of relieving it in others. Now that the pioneer has actually found his way into that wilderness of brick and mortar,—the haunt of fever and of all malignant spirits,—it may be hoped that the Commissioners of Metropolitan Improvements will find it possible to follow in his track. If the Record Commissioners at the same time cut into the dreadful overgrowth in another part of the same neighbourhood, a pathway for civilization in the line so long intended will be half opened up to the hands of the former.—We may mention, in connexion with this subject, and with reference to the terrible visitation that is slowly and portentously stalking westward,—making all such ventilators questions of life and death,—that the French Government has appointed a Commission of the most eminent medical men in that country to apply themselves to the discovery of means for preventing, and mitigating the effects of, Asiatic cholera.

The Chancellor of the Exchequer has at length, we find, struck a blow at the abuse of the privilege of the Channel Islands, to which we have more than once adverted,—which made them manufactories of periodical publications to be circulated throughout Great Britain in evasion of the Stamp duties and encroachment on the rights of the fair speculators of the press. A bill has been introduced by him and other members rendering certain newspapers published in those islands and in the Isle of Man liable to postage. It empowers the Postmaster-General, from time to time, to charge any newspapers printed or published in any of the islands of Guernsey, Jersey, Alderney, Sark, and Man, and sent by the post between any of such islands and Great Britain or Ireland, or sent by the post in Great Britain or Ireland, with such rates or duties of postage as the Postmaster-General shall think fit, but not exceeding the rates or duties to which such newspapers would be liable if they were letters sent by the post; and the Postmaster-General may from time to time alter or repeal any such rates or duties of postage, and charge any such newspapers with any other rates or duties of postage, not exceeding the rates to which such newspapers would be liable if they were letters (or may exempt any such newspapers from all duties of postage), in lieu thereof.

The Scottish papers record the death in Glasgow of Mr. David Buchanan, for upwards of twenty years editor of the *Edinburgh Evening Courant*, and a large contributor, it is stated, to the 'Encyclopædia Britannica.' Political economy and the study of geography were the two departments of literature to which he was principally devoted.—The English journals announce the death of Miss Abigail Lindo, the authoress of a Hebrew and English and English and Hebrew Lexicon,—at the age of forty-five.

The *Journal des Débats* says that M. Thiers, desiring to co-operate in the efforts making by the Academy of Moral and Political Sciences for the defence of social principles, and on the appeal of that body,

has suspended his labours on the 'History of the Consulate and the Empire' for the purpose of putting the finishing hand to a work which he has entitled *De la Propriété*.—and with a view to extending its benefits he has presented his manuscript as a gift to the Society formed for the publication of his history of the Consulate and Empire, with a charge that the copies shall be widely circulated.

The French journals have given some interesting biographical details respecting the late General Duvivier, one of the gallant men who have been lost to France amid the recent troubled times. When the Revolution of February broke out, the General was about putting the finishing hand to a work on 'Phœnician Antiquities' which had occupied him for the previous five years, and to which his literary friends attached great value. He was, it is said, well versed in the modern Oriental dialects, profoundly acquainted with ancient languages, and a learned student in archæology and hieroglyphics. Interrupted in his labours by the demands of the Republic, he assumed the functions of General-Commandant of Paris and General-in-Chief of the *Garde Mobile*—toiling for eighteen hours a-day during three terrible months to meet the exigencies of his position. An account of his services throughout that feverish time is given; but it is sufficient here to record that they exhausted a constitution to which sixteen hours of daily literary labour had been but as support and refreshment,—and that he died ere he could return to his Phœnician manuscripts, amid the duties of a far other field than that which, though a soldier, he had chosen for his field of fame.

The *Boston Traveller* states that the American Academy of Arts and Sciences has imitated the example of the Royal Astronomical Society of London in the cases of Miss Herschel and Mrs. Somerville, by electing to an honorary membership of its body Miss Maria Mitchell, of Nantucket, the discoverer of the comet which bears her name.

ERUPTION OF MOUNT ETNA.

NEW EXHIBITION at the DIORAMA, REGENTS PARK, representing MOUNT ETNA, in SICILY, under three aspects—Evening, Sunrise, and during an Eruption; and the INTERIOR OF ST. MARK'S at VENICE, with two effects—Day and Night. During the latter, the Grand Machine Organ will perform. Open from Ten till Five.—Admission, 2s.; Children under Twelve Years, Half-price.

ROYAL POLYTECHNIC INSTITUTION.—The Cause of the FATAL EXPLOSION in ALBANY-STREET explained, and illustrated by Experiments, in a LECTURE by Dr. RYAN on GAS MAKING, in which the New Patent Gas Apparatus of Stephen White, Esq. will be exhibited daily at Half-past Ten o'clock, and in Evenings of Monday, Wednesday, and Friday. A LECTURE on the HISTORY, USES, AND MANUFACTURE of QUINA PERCHA, by Dr. BACHHOFFEN, daily, at Ten o'clock, and in the Evenings of Tuesday, Thursday, and Saturday. The various Optical Effects. Diver and Diving Bell, &c.—Admission, 1s.; Schools, Half-price.—The New Catalogue, 1s.

FINE ARTS.

FOREIGN CORRESPONDENCE.

Brussels, August 23.

BEING the first English writer, I believe, who called attention to the modern school of Art in Belgium, I have naturally felt interest in its Exhibitions year by year; and came up here to look at the show of 1848, in any humour rather than that of *Smellfungus*. But Charity's self could not describe it as satisfactory. Some of the best painters do not exhibit; and the amount of trash hung up is so stupefying as to dull the sense to the really agreeable impressions which a selected few of the works might legitimately excite. In short, I am sorry to say that I observe no sign of progress made during the last seven years.

Yet the exposition at Brussels includes pictures on a scale very rarely displayed at our Royal Academy. M. Slingeneys's 'Battle of Lepanto' and M. Wittkamp's 'Deliverance of Leyden' are both works of that enormous size which can find place only in a public room. The composition of the first is hopelessly embroiled. Its lights and grey colours are flung about everywhere in a violent profusion; the tints, however, are rich and clear. M. Wittkamp's huge historical subject has good qualities diametrically opposite. The action is well made out—the moment clearly defined. Some of the heads possess considerable expression; but the painting is cold and heavy,—partaking too much of the clay tints and blacks of Delaroche to satisfy an English eye. Neither of these works can be accepted as fulfilling their pretensions; but both tell a tale of

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ambition—and perhaps, too, of opportunity—from which we might learn something.

The pictures most admired seem to be two by M. Gallait—a 'Temptation of St. Antony' (which, I confess, I did not find tempting) and 'The Last Moments of Count Egmont.' The latter does not merit so summary a leave-taking. The hero is in his cell, attended by the Bishop of Ypres. The breaking dawn shows to the prisoner the people in the Place below who are building up his scaffold—and the ecclesiastic attempts to withdraw him from contemplating so fearful a spectacle. Contrast has been the obviously the uppermost idea with M. Gallait; the cold light of early day set against the taper which displays the mass-book—the nobleman and hero, spiritualized by high purposes and deep suffering, supported (foiled would be too unkind a word) by the comely and pompous churchman. The trick, in short, is too obvious; but, in spite of an intention bordering on conceit more than thought, the picture is still a fine one,—proper, pathetic, and elevated in its expression—the colouring deep and solid. The modelling of some of the forms is heavy rather than careless or positively incorrect.

In the next rank, perhaps, may be mentioned 'The Crusader's Return'—three half-length figures, life-size, by M. Storms—the good effect of which is impaired by the foxy tone of its colouring. With this come M. J. Van Eycken's efforts. One, bearing the affected title of 'The Abundance of the Year 1847'—a study of a mother and two children, with the insignia of Autumn lavished round—has more of the real roses of human flesh, and less of the yellowish tones which our foreign friends are apt to bestow thereon, than the generality of similar pictures in the Exhibition. Too many of the models here laid under contribution might have fed on saffron, if the painter's record of them is to be believed. I have remarked the peculiarity in former years; and, like other colour-sicknesses, it has increased, and shows signs of becoming epidemic. Two pictures by M. Guffens—'Pausanias and the Flower-girl' and 'Blanka van Felzenstein (from a Flemish ballad)—fall into their places here. M. Hamman's contributions are of a higher order:—one being a reading at the Court of Francis the First, into which fair company Rabelais, look in hand, introduces his Pantagruel (a very pleasing picture); the other, the anatomist Vesalius commencing his anatomical studies by prayer,—forcible in execution, but forced in invention. There are also two good works by M. Hunin, of Malines; both subjects being the distribution of alms,—one having Maria Theresa as chief almoner. It is a pity that their tone of colouring is so livid and heavy.

'Les Marguerites,' by M. Swertz, is a picture to be remarked for the great care with which it is executed and the loveliness of the female countenances; but they remind the gazer too strongly of the 'Two Leornoras,' by Sohn. I must, lastly, mention M. Willem's 'Huguenots hiding after the St. Barthélemy,' and the 'Interior of a Corps de Garde,' by M. Lies, as among the redeeming works of the collection.

One of the most ambitious pictures exhibited is a new 'Ugolino,' by M. Lecomte, of Paris:—the famine, the misery, the despair, reasonably well expressed—the contrast among the heads sufficiently marked—the costume doubtless correct enough to satisfy the most classical of stage-managers who cares not for what is distracting to the eye, unbefitting to the wearer, or unbefitting to the scene, so the ruff be but duly starched and the hose cross-gartered "from the most authentic sources." The gazer will be struck first with the party-coloured legs of the young Gherardeschi, and after that with the terrible tragedy of the Tower of Fame! This can scarcely have been the effect intended.—Of a perfectly different humour is M. Lepoittevin's conversation piece, 'David Teniers conducting Don John of Austria, his pupil, to visit a *Kermesse*.' Graceful figures are here, such as Watteau need not have disdained—groups in the background, true to the Low Country low life which Teniers drew:—but what colour! The trees, the herbage, the whole distance, might have been dipped in the distillations of a clay-bank or slate-quarry.

In what may be called literal emulations of the style of their "approved good masters" some of the contemporary Flemings have been success-

ful. 'The Preparations for a Good Dinner,' by M. de Noter, as a piece of minute and careful painting, and most elaborate composition of figures cabinet size, and still life, might at once take its place in any gallery of Dutch pictures. The same praise is fully merited by M. Van Hamme's 'Lace Maker'; one of those capital old women at a window, little less magical after their kind than the Lady behind her pot of flowers who plays so notable a part in Oriental romances. In another style, the works of the MM. de Brækeleer are excellent. Indeed, 'The Unfortunate Weaver,' by M. Ferdinand, is, take it all in all, perhaps the most admirable picture in the Exhibition. The tone is lower than we are accustomed to,—but the finish is finer. The subject (as its title imports) is a sad one, but it is treated without needless squalidity. I can specify only two more pictures:—a seaside tavern in North Holland by M. Van Hove, of the Hague, which is full of character; and a picture by M. Serrure,—for the sake of its title, which I transcribe literally from the Catalogue: 'Première entrevue du squire Tornhill et d'Olivia.' There are other pictures in the Exhibition from the immortal 'Vicar.'

Had I followed in the wake of Belgian criticism, I might have further praised a sea-picture by Herr Von Ackenbach, of Düsseldorf;—but if Van der Velde could paint water (which our "Under-Graduate" denies), the *Nieder-rheinischer* professor cannot. The solitary specimen of that art exhibited by M. Waldorp, who is in high repute here, is not worthy of his reputation. Certain landscapes by M. Roelofs seemed to me the best,—but far, very far, below the level of our own mediocrities, not to speak of our Lees and Creswicks.

Lastly,—having an objection to superlatives, whether used in praise or in blame—I will not speak of the sculptures; since, really, nothing positive nor comparative would in the least rightly express their merits. Let us hope that the torpidity no less than the tumult of this year will prove merely transient: and that 1849 may yield as much to gratify as 1848 has yielded to discourage those who looked for signs of advancement in Belgian painting and sculpture.

FINE-ART GOSSIP.—The School of Design at Somerset House closed for the autumn vacation on the 15th of August,—and will re-open on the 2nd of October. The Class of Form will be conducted as heretofore by Mr. Townsend, as its Head Master, with the aid of four Masters—two of whom are new appointments, which the extent of the class has rendered necessary. The superintendence of the Class of Colour has been relinquished by Mr. Horsley,—and Mr. Redgrave has been appointed in his place, with the assistance of one Master. The Class of Ornamental Design, superintended during the last session by Mr. Dyce, who has also lately retired from the School, will be conducted, with the aid of one Master, by Mr. Herbert. At the close of the present vacation, rewards to the amount of about 150*l.* will be distributed to the students for their best productions during the last year:—and one of a complete course of lectures on the History and Principles of Ornamental Art, commencing with Egypt, will be delivered by Mr. Wornum every fortnight throughout the forthcoming session.

A small picture, in the Byzantine style, was sold on Thursday last by Messrs. Sotheby, among some valuable effects relating to the Fine Arts which had been confided to them from Paris. The sale was to have taken place in that capital—as appeared from the Catalogue printed there; but the disasters of the time have compelled them to seek a better market. The picture in question represents the Virgin and Child, done on a gold ground in the perfection of the conventional early style of which specimens are so rare in this country. This very interesting piece, so delicately executed, is in its original frame of tortoise-shell encrusted with mother-of-pearl details.

"Are you aware," says a correspondent, "of the extraordinary proficiency acquired by the authority of the National Gallery in giving away the tickets for Mr. Vernon's Collection? The public is informed that tickets are to be had at the Gallery on given mornings: a humble member of the public presents himself on Wednesday, the 30th of August, at 10 o'clock precisely (that being the time of opening)—gets in

immediately, with numerous others,—and finds that all the 300 tickets are already given away! Is not this dexterity? Of course everything is fair: but *how* does the gentleman manage to give away with any discrimination so many tickets in two minutes?"—We have heard many complaints of the manner in which this distribution has been managed; but have heard, likewise, occasional explanations suggesting a principle of the irregularity to which we scarcely like to take exception. Still, the public, and each individual as a part of it, has a right to insist upon the terms announced: and we hope that now when the first pressure for admission is past it may be found easy to make the distribution of this privilege in such a manner as shall avoid any cause of further complaint.

On Saturday last Mr. John Martin invited some of the professors and lovers of Art to see a large landscape which he has just executed in fresco in his house at Chelsea; when we had an opportunity of renewing our acquaintance with some of the pictures that have ranked amongst this painter's most successful efforts. Among them were the 'Nineveh,' 'The Deluge,' and some of his larger compositions in oil colours from the 'Paradise Lost.' Many of these appear to be improved from the removal of varnish, which tended much to their obscuration. Some, however, yet retain a highly enamel-like surface, restricting the spectator too frequently to a single point of observation,—and that not always an advantageous one for perspective truth. This fault cannot be charged on the fresco landscape-scene:—which is picturesquely inserted by Mr. Martin in a space at the end of the garden of his house, appearing through a frame-work or vista formed by its hall and passage. The space or depth thus picturesquely prolonged is an effect of decoration often employed by the Italian noble in the *cortile* of his palace:—facing whose *portone* is usually seen some perspective landscape with architectural enrichment. Mr. Martin has evinced much facility in the management of a material so little pliant to the requirements of light and feathery foliage,—and which has, in consequence, been so little employed in its representation.

Our attention has been called by a correspondent to what he considers a piece of desecration about to be enacted on the Cathedral of Glasgow. This edifice was the only one of its kind left entire at the period of the Reformation; and the threatened wrong which our correspondent deprecates is that of the removal of the west tower, on the assigned ground that it does not harmonize with the rest of the building. Opinions vary as to the age of this particular portion of the monument; but all concede to it, our correspondent says, an antiquity of not less than three or four centuries:—and that it formed a part of the structure before the era of the Reformation, he adds, is certain. It is argued, that it is in any case an important feature of the structure,—and has been so for so long a time as to make its removal a grave encroachment on the historical character of the Cathedral. The Cathedrals of Brechin and Dunkeld have both square towers in the same position as the western tower of the Cathedral of Glasgow. Sir Walter Scott, our readers know, has made the Cathedral of Glasgow a classical building. A memorial has been presented to the Council of the city protesting against this act of destruction:—but has been directed to "be laid on the table." Town Councils like to have their own way:—but the press has come in aid of the memorialists, and is endeavouring to elicit such an expression of public opinion as even Town Councils obey.

The grand gallery of the Louvre has been again opened to the public, after the removal of the pictures annually exhibited there,—and the artists and students are once more admitted to the benefits of that teaching which the Exhibition periodically suspends. The distribution of prizes to the most successful exhibitors for 1848 has also taken place—the bronze or silver medal which of old represented fame to them being on this occasion replaced by works of Sèvres porcelain, placed by the Minister of Commerce at the disposal of the Minister of the Interior for the purpose. As the Director of the Fine Arts expressed it in his remarks which preceded the distribution, one work of French Art is thus made to reward another. But changes of far greater importance have taken place in the grand gallery;

—which henceforth it is hoped will be no more surrendered to the uses of the modern Exhibition. The disposition of the pictures has been completely changed; an arrangement based on the symmetry of the frames and the dimensions of the canvases having given place to a real and logical classification. The principles of classification which it has been endeavoured to conciliate as far as they were compatible with one another are—1st. The assemblage together of the before scattered works of the same artist and those of his pupils and imitators.—2nd. A chronological arrangement of each group in each school—Italian, German, French, &c.—3rd. The placing of the acknowledged masterpieces which are the objects of constant study near the eye.—For this new arrangement, which admitted no longer of dovetailing according to shapes and sizes, the long gallery connecting the Tuileries with the Louvre has been found too small; and it has been necessary to add, for the uses of this collection, the suite of rooms fronting the water and the fine saloon known by the name of Saloon of the Seven Chimnies—forming a second line of picture walls nearly corresponding to the grand saloon and grand gallery which held the collection before. This accession of space has permitted the addition of many pictures hitherto stowed away in ware-rooms, and of all those found in the royal palaces. A complete catalogue raisonnée of all the pictures that have figured in the royal and national collections from the days of Francis the First to the present time is to be prepared—having for introduction a history of the formation and vicissitudes of those collections.—The halls in the water front are not yet, we believe, open to the public, the classification and hanging not being completed.—We may mention as an argument against any further surrender of these fine galleries to the annual exhibition of modern works, the fact that the removal of the boards covering the old pictures for the support of the new has disclosed serious damage done to some of the most valuable pieces in the national collection.

The patriarch of the art of chasing, M. Dartois, has just died at Liège, aged ninety-four years,—say the journals.

A correspondent writes to us as follows:—"All church-haunters (and their number now is Legion) who travel abroad leisurely are hereby recommended, with as much emphasis as discretion, to 'try' the Cathedral at Tournay. The town stands on no very frequented highway; and is therefore, I suspect, not much troubled with tourists: but I fancy that it would repay closer inspection,—since, merely for the superficial passer-by it affords sights as primitive as people weeding the streets (for the place is thriving) and a public character as unsophisticated as the keeper of the principal coffee-house (ever memorable be her capital breakfast!) who could not be made to understand the use and virtue of *cette petite pièce*, as she called my comrade's pocket-compass. But whether such traits abound or not, a morning spent in the Cathedral will well repay the architectural pilgrim; since, besides its great magnificence of scale, the edifice has peculiarities distinguishing it from most of the other grand ecclesiastical buildings in Belgium. It was sorely battered by those polite lovers of Art, the French; the tracery torn out of the windows, the painted glass shattered, finials knocked down, gables cut off, &c., &c. I would forgive our 'born enemies' if they had swept away only that trash of *rococo* altars, flamboyant bishops with passionate wigs and vestments as fine as if Arachne had played the sculptor, which choke up and crowd these Low Country churches: but at Tournay 'intervention' meant wanton mischief,—and were it not for the judicious measures which have of late been undertaken and are now in progress, a building of first-class interest must ere this have become a shapeless heap of mere rubbish. As it is, an air of singular sobriety (not gloom) is given to the lofty and light Gothic choir, and to the more massive and stern circular arches and columns of the nave, by cleansing from whitewash the somewhat coarse grey marble with which they are ribbed and of which they are framed. The transepts, each ending in a semicircular apse, have a solid grandeur which I do not recollect to have seen exceeded. The five Romanesque towers, as a group, surpass any similar family in the Rhine-Land,—that

district of Romanesque churches. In short, in a country where so much of what is tawdry in ornament is mixed up with so much that is ample and noble in design, the Cathedral of Tournay offers a precious variety. No one is competent to lecture on the Belgian churches without having studied it, as an example at one extremity of the scale,—the other perhaps being occupied by the painted church of St. Jacques, at Liège.—It is satisfactory to note how well and carefully other churches are in progress of restoration: in particular the Cathedrals of Brussels and Malines,—where most extensive renovations are carried on. Some of the pictures, it is true, are repainted where they should be merely cleaned: it will relieve amateurs, therefore, to be told that the grand Vandyck in the Malines Cathedral, which so long has stood in need of tender care, has suffered less than might have been expected at the hands of M. Morisens,—the painter to whom it has been committed and in whose atelier I saw it."

MUSIC AND THE DRAMA

MANAGERS AND ARTISTS.

ERE our theatrical and musical campaigns fairly set in for the autumn and winter, a few speculations, "of general use and comfort," referring to managers and artists, may not be found unseasonable, especially at a period when the artistic interests of Europe are so circumscribed that on some three or four theatres the maintenance of Opera may be said now to depend. That undertakings managed *per receipt* in the old fashion must share the fate of Dr. Syntax's babe, and die "almost ere they are born," is evident to the meanest capacity. An article in a recent number of *Fraser's Magazine* on 'The State of the Acted Drama' may not prove unworthy of being considered by those who fancy, with ourselves, that Common-Sense is allowed too little part in the settlement of affairs. And here is a passage from a letter by a foreign critic and artist, in which the self-same hindrances as some of those mentioned in the English periodical are adverted to, more piquantly.

"Managers," says M. Berlioz, "are the same all the world over. Nothing equals their sagacity in discovering platitudes, unless it be their instinctive aversion for works supposed guilty of *fautes* of style, grandeur, or originality. * I have asked myself one thousand times why the generality in every country show such marked predilection for all that which real artists, cultivated intelligences, and even a portion of the public, persist in regarding as the results of the poorest industry—productions of which the workmanship is no better than the materials, and the duration of which is in general so limited. It is not that platitudes constantly obtain greater success than fine works:—we see often the contrary. Neither is it that thoughtful compositions entail greater expense than the old threadbare things;—the contrary is often the case. It may simply arise from this, that the one class demand from every creature in the theatre, from the manager down to the prompter, care, study, attention, patience,—from some individuals even intelligence, talent, inspiration; whereas the other, made up expressly for the titulary, the mediocre, the superficial, the ignorant or the imbecile, and naturally a great number of advocates. Now, a manager loves, beyond everything, things which bring him in the good words and satisfied looks of his ministers,—things which every one knows without having learnt them—which disturb no accepted idea or habit—which follow gently the current of prejudices—which hurt nobody's *amour propre*—which reveal nobody's incapacity—things, above all, which do not demand too much time to be put into execution. * Yet more, there be managers ambitious of doing everything themselves,—who, on that account alone, are hostile to people ill-advised enough to present works which there is no putting on the stage without the author's assistance. The importance which these indiscreet authors acquire being gained at the manager's expense, the latter endure it, as though it were an indignity. * Then, there are such things to be found as monomaniacs—I beg their pardon, *monomaniacs*—managers; persons who, above everything else, love a certain direction of ideas,—a certain historical epoch—certain costumes and certain scenic effects—a certain singer—a certain dancer—or a certain something else. No matter if it be dragged in neck and heels, they must have their fancy somewhere! The fancy of M. Duponchel, the Director of the Opera, was, in fact, and will be a cardinal in a scarlet hat, under a canopy. Operas, without a cardinal, a bat, or a canopy, have not the slightest attraction for him. * I do not allude to his passion for horses, since so deep a passion amounts to the *respectable*."

Thus far we follow M. Berlioz,—certain that there is not an unacted dramatist nor an unsung opera-writer, at least, who, reading the above, will not say "True!" and with a groan add his own particular instance of ill-usage by way of clenching the argument. But it is not fair (as the footman persecuted by the love-lorn milk-maid expressed it) "that the reciprocity should be all on one side." The Artist must not be forgotten

when we are reckoning with the Manager. We fear that his selfishness and extravagance in demands have, of late, increasingly contributed to the dilapidated state of matters which is bewailed from one end of Europe to the other. Theatrical singers now commence their career on the strength of one favourite part, where, of old, vocal and musical science adaptable to all occupations was thought necessary. Miss Petowker is for ever wanting to "let down her hair and do 'The Blood-Drinker's Burial,' The Brahm of the hour must have his ballad or his chest a temptingly displayed, or he will "throw up his part." This damsel fresh from Italy, will hear of no opera but translations from Verdi—the venerable *basso*, melancholy in the memory of antiquated success, sighs for new insipidities like 'Flow, thou regal purple stream,' and the other dismal and mechanical bass songs, which were popular in the palmy days of "native talent." All stand out for remunerations of which their uncles and aunts never dreamed. Many get them. Few entertain the remotest idea of studying one note more than will suffice to get the *encore* or to sell the portrait in the window—few ever dream that, without occasional concessions, wide knowledge and ceaseless labour an Artist's triumph may only exhaust, in place of adding to, the resources of his art. We must, perhaps, not be either surprised or savage, all circumstances considered, to perceive that "After us, the Deluge!" is virtually so universally the device of most among the fraternity; but neither must we turn our eyes away from the fact as it exists,—since in that fact lies very nearly as much mischief, hindrance, and cause of ruin as in the penny-wisdom policy satirized by M. Berlioz. That Manager and Artist, with such views of enterprise and principles of action as the above, should be perpetually at war—perpetually endeavouring to secure unfair advantages;—that they should constantly, by preference, avoid those direct and simple negotiations, on which alone for basis can any undertaking flourish or any good understanding be maintained between co-operating parties—are consequences which will surprise no by-stander. So it must be: ignorance and self-interest exclude truth and generosity—and, since the value of the latter is year by year increasingly understood, in proportion as their exclusion lasts or spreads must the estate—be it a kingdom as large as the Czar's empire or as small as "the wooden O" over which a Crummles presides—suffer deterioration and stand in peril of sure, if not speedy, downfall.

MUSICAL AND DRAMATIC GOSSIP.—In the coming theatrical season the heroines of the stage will be found occupying each other's former spheres of attraction and display. Miss Laura Addison emigrates to the Haymarket—Mrs. Stirling to the Olympic—and Miss Glyn to Sadler's Wells. At the two former places, however, Mr. and Mrs. Charles Kean—and Mr. Brooke and Mrs. Mowatt are stationary. Mr. Betty will appear at the Marybone Theatre, in October.

Mdlle. Missen is named as *prima donna* at Drury Lane, under Mr. Bunn's management;—and negotiations are said to have been opened with Miss Hayes. New operas by Messrs. Wallace and Balfe are promised.

The arrangements for the private theatricals at Windsor Castle are, it is said, completed. The performances will commence with 'King Lear,' on Thursday after Christmas; and for the four succeeding Thursdays,—'The Merchant of Venice,' 'All in the Wrong,' 'The Stranger,' and Mr. Jerrold's play of 'The Housekeeper,' with one of Mr. Kenney's farces, are determined on.

The grand Italian Opera, with Grisi, Mario and Tagliafico, has found a home in Liverpool.—Jenny Lind, M. Roger and Signor Beletti are announced there for a concert on the 7th of September.

The Concert for the benefit of the Chorus of Her Majesty's Theatre took place in the Opera Concert-Room on Saturday last—all the principal performers of that establishment giving their gratuitous assistance. Mdlle. Lind again performed the curious Trio for soprano and two flutes from Meyerbeer's new opera, 'The Camp of Silesia,'—and joined in the beautiful Quartet and Chorus, from Weber's 'Euryanthe,' with Signori Gardoni, Beletti, and Lablache. She sang also several of her quaint

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Swedish melodies, accompanying herself on the pianoforte. Thalberg played a couple of fantasias on subjects from 'La Sonnambula' and from 'Masiello.' Several pieces were sung by the Pyrenean Singers. The remainder of the entertainment consisted of favourite airs and duets from the operas of the day. The receipts of this concert must have been very large.

A correspondent thus writes:—"On the plan of Olaus Magnus's memorable chapter 'On Snakes in Iceland' might the foreign theatrical and musical news for the current month be written. The artists of all countries seem vagabondizing everywhere without chance of profit. In Ghent we found Dejazet, whose airs and graces and *jaerie* command but 'a beggarly account of empty boxes';—at Tourmay, 'the celebrated *prima donna* of Her Majesty's Theatre in London,' Madame del Carmen Montenegro, had been giving operatic representations. But every one is complaining of bad times. No travellers!—the latter fact attested by the impotency of the class *Commissionaire*, which has this year sunk to a mendicant order of the utmost zeal. Small chance for dramatists or musical composers now!—small entertainment for novelty seekers! Yet the Belgians seem resolute to muster up a nationality in music as well as in painting and literature. Meetings of part-singers are announced everywhere: and these depend upon the inhabitants of the towns themselves and not upon the support of the languid English, or impertinent French, or noisily commonplace Germans, who love to talk 'pictures, taste,' cookery, and low charges of living at every *table d'hôte*.—We were pleased with the organ in Malines Cathedral, which seems to possess a rich and full body of *foundation tone*: of its *solo* parts I cannot speak. Ere I have done with this paragraph of nothings let me correct Murray's account of the singing in the *Bégynne* at Ghent—lest it lead to others being disappointed as well as your correspondent. The 'Hand-Book' gives the impression of its being congregational, and as such striking. It is no such thing. The scene is impressive, from the number of female figures clad in a marked and picturesque costume and the twilight time at which vesper service takes place: but the music is poor,—a few selected voices singing in unison from the organ gallery to a most *gimcrack* accompaniment. The inaccurate descriptions of unmusical tourists should in this case, as also in that of the Haarlem organ, find no place in a guide-book. Were pictures, buildings, distances, and hotels characterized as loosely, what would be left of value to every man's *vade mecum*? But each traveller assumes himself competent to be ecstatic and sentimental about music;—and disappointment and mistake, as I have said, come of it."

MISCELLANEA

Indian Waterfall.—Among the cliffs of the Eastern Ghats, about midway between Bombay and Cape Comorin, rises the river Shirawati, which falls into the Arabian Sea. The bed of the river is one-fourth of a mile in direct breadth; but the edge of the fall is elliptical, with a sweep of half a mile. This body of water rushes at first, for 300 feet, over a slope at an angle of 45°, in a sheet of white foam, and is then precipitated to the depth of 850 more into a black abyss, with a thundering noise. It has, therefore, the depth of 1,150 feet! In the rainy season the river appears to be about 30 feet in depth at the fall; in the dry season it is lower, and is divided into three cascades of varied beauty and astonishing grandeur. Join our fall of Genesee to that of the St. Lawrence, and then treble the two united, and we have the distance of the Shirawati cataract. While we allow to Niagara a vast superiority in bulk, yet in respect to distance of descent it is but a mountain rill compared with its Indian rival.—*Rochester Democrat*.

Auroral Cloud.—I observed another instance of this phenomenon at this place on the 19th inst. at 4 p.m. A slender cloud (*stratus*) lay across the sky from N. to S.W., at its highest elevation about 45° from the horizon. From this arose at intervals several bars or ribs of dark cloud, which extended overhead, and disappeared amongst a rather dense mass. Between these bars the cloud had a very peculiar mottled appearance as if pierced by rays of white light ascending from behind and radiating like the dark bars from a point below the horizon. Under the first-mentioned arch, the sky was covered by a compact and even cloud, which descended like a curtain to the western horizon, where in front of it rested a considerable quantity of brightly-illumi-

nated *cumuli*. The top and bottom of this curtain were much whiter than the centre. The radiated clouds gradually changed until by 5 o'clock they had assumed the form *cirro-cumulus*, "the beautiful semblance of a flock at rest." Wind gentle and from the W. The phenomena connected with the auroral cloud of the 7th of July [*Athenæum*, Nos. 1081, 1082], having been further noticed and described at the recent Meeting of the British Association, [*ante*, p. 834], has induced me to forward to you the above.—I am, &c. Portsmouth, Aug. 24. JOHN J. LAKE.

The Patent Domestic Telegraph.—Since our notice of the application of the principle of the electric telegraph to domestic purposes by Mr. Reid, of Birmingham, he has made some improvements, and extended the use of the instrument in hotels, taverns, tea-gardens, coffee and chop houses, public companies and private houses, and even in mines. The alteration is confined to the dial-plate, on which the specific questions and demands are disposed in due order.—*Builder*.

International Copyright with America.—Attention has recently been called to the circumstance of a committee having been appointed by the Congress of the United States to take into consideration a petition, which has been presented by some parties in America, in favour of an amendment of the law of copyright. The committee is composed of gentlemen well known for the interest they have taken in the cause of letters; and the New York paper, from which the following intelligence is extracted, says:—"We anticipate at their hands an able and elaborate report in favour of amending the present law of copyright, in such manner as to relieve American authors from the overwhelming competition of unbought foreign literature, and to secure them, also, in the right to furnish translations of their own works. We look to this committee to dispel, at once and for ever, the idle objections which have been urged against an international copyright,—a measure necessary alike for the protection of authors, the security of publishers, the advancement of sound morals, the establishment of a national literature, and the vindication of the American character. Our Transatlantic brethren begin at length to view this question in its true light.—*Examiner*."

TELEGRAPHY

[From our own Correspondents.]

TUESDAY.

SECTION A.—MATHEMATICAL AND PHYSICAL SCIENCE.

'Report of further progress of Anemometrical Researches,' by Prof. PHILLIPS.—Referring to the Report on this subject presented to the Southampton Meeting, the author recapitulated the steps of the investigation by which he had been conducted to propose the evaporation of water as a measure of the velocity of air-movement. In the former researches, the conclusion which may be drawn *a priori* from Dr. Apjohn's formula for the relation of the temperature of the dew point to that of an evaporating surface was verified; and the *rate of cooling* of a wet bulb in the open air was found to be *cat. par.* simply proportional to $t - t'$ (t being the temperature of the air, t' that of an evaporating surface). The air-movement was found to affect the rate of cooling nearly in proportion to the square root of the velocity; and thus by simply observing the rate of cooling of a wet bulb exposed to a current of air, and also the value of $t - t'$, the velocity of the air current becomes easily calculable. But this instrument is only an *Anemoscope*, of extreme delicacy and various applicability indeed, but incapable of being converted to a self-registering *Anemometer*.—It appeared to the author probable that the *rate of evaporation* followed nearly or exactly the same law as the rate of cooling,—the same reasoning in fact applying to each case. This was tested by experiment in a great variety of ways, with instruments of extremely various forms, and with velocities of air-movement from 400 yards to 27,000 yards in the hour. The velocities of the wind were measured by a very lightly poised machine Anemometer of Dr. Robinson's construction, but without any wheel work, the revolutions being counted by the observer.—In the course of these experiments some apparently anomalous circumstances in the rate of evaporation occurred to the author; but these he hopes to be able to interpret by further careful research, and finally to present in the compass of a few cubic

inches an anemometer specially suited to measure and record the low velocities of wind, and furnish a useful complement to the larger machines already esteemed to be so important in meteorology.

Prof. STEVENS remarked that Dr. Robinson had completed the scale of the instrument, and explained the mode in which the degrees of a graduated circle gave the number of miles traversed at any instant since the paper was last put in, by laying a radial brass rule to the point of the spiral traced by the pencil, to its intersection with the concentric circle which corresponded to the time.—Col. SABINE said he had sent one of these instruments to Toronto and another to St. Helena, and so far the account of their working was very satisfactory.

'Report of progress, and presentation of the fifth volume of *Kew Observations and Experiments*,' by F. RONALDS.

'On rendering the Electric Telegraph subservient to Meteorological Research,' by J. BALL, Esq.—What is popularly termed the weather is a general expression for the physical condition of the atmosphere with reference to heat, pressure, moisture, and the velocity and direction of its motion. Two classes of causes determine these conditions at any given point of the earth's surface. The first class may for short periods of time be considered as constants, depending on the position of the point of observation on the globe and the physical conformation of the adjoining district. The second class, upon which the proverbial uncertainty of the weather depends, depend upon the relative influence of each portion of the atmosphere upon those surrounding it, by virtue of which a disturbance of equilibrium at any one point is rapidly propagated in all directions. In common language this is expressed by saying that the direction of the wind is at once the cause and the indication of changes of the weather. However far we may be from a general solution of the problem of atmospheric disturbances, meteorologists have made considerable progress in tracing the connexion between successive states of the weather owing to the mutual influence of contiguous portions of the atmosphere. These cases have been studied *a posteriori*, comparing the known results with observations extending over considerable areas. Now that we have the means of receiving information in an indefinitely short space of time by the Electric Telegraph, these problems, under favourable circumstances, may be studied *a priori*. In London we may receive instantaneous intelligence of the condition of the atmosphere as to the five above-mentioned elements, from nearly all the extremities of Great Britain,—with a delay of about four hours we can have similar intelligence from the western part of Ireland, and with a still shorter delay, our communications may extend to the centre of France, the banks of the Rhine, and even to the frontiers of Hungary and Poland. I do not pretend to say that with such elements for calculation we should at once be enabled to predict changes in the weather with absolute certainty. It would require some time to eliminate the action of accidental and local causes at particular stations; but there is no reason to doubt that in a short time the determinations thus arrived at would possess a high degree of probability. The ordinary rate at which atmospheric disturbances are propagated does not seem to exceed twenty miles per hour; so that with a circle of stations, extending about 500 miles in each direction, we should in almost all cases be enabled to calculate on the state of the weather for twenty-four hours in advance.

Dr. LLOYD said he supposed Mr. Ball was aware that Prof. Lamont of Munich had rendered the ordinary telegraph subservient in that country to the purposes proposed by Mr. Ball. By having the state of the barometer, thermometer and wind telegraphed from every part of Bavaria, he was often enabled to foretell storms and other atmospheric changes more than twenty-four hours before they occurred, to the no small astonishment of those who were not aware of the means he used.

'On the Mean Results of Observations,' by Dr. LLOYD.—It is well known that the mean value of any magnetic or meteorological element, for any

* We observe that the *Express* London evening paper has adopted this idea, and is publishing, by aid of the Electric Telegraph Company, the state of the weather in different parts of the kingdom at a given time in each day.

day, may be had approximately, by taking the *arithmetical mean* of any number of observed values obtained at *equal intervals* throughout the twenty-four hours; the degree of approximation, of course, increasing with the number. It is important to ascertain the law which governs this approximation.

Any periodical function, u , of the variable v , being represented by the formula

$$u = a_0 + a_1 \sin(v + \alpha_1) + a_2 \sin(2v + \alpha_2) + \&c.,$$

in which a_0 is the true mean, or

$$a_0 = \frac{1}{2\pi} \int_0^{2\pi} u dv,$$

$u_1, u_2, u_3, \&c., u_n$, denote the values of the function u , corresponding to those of the variable

$$v, v + \frac{2\pi}{n}, v + \frac{4\pi}{n}, \&c. v + \frac{2(n-1)\pi}{n},$$

it may be shown that their arithmetical mean is equal to

$a_0 + a_n \sin(nv + \alpha_n) + a_{2n} \sin(2nv + \alpha_{2n}) + \&c.,$ whatever be the value of v . Hence, as the original series is always convergent, we have, when the number n is sufficiently great,

$$a_0 = \frac{1}{n} (u_1 + u_2 + u_3 + \&c. + u_n)$$

nearly; the error having for its limit a_n nearly. Hence, when the period in question is a *day*, we learn that the *daily mean value* of the observed element will be given by the mean of *two* equidistant observations, nearly, when a_2 and the higher coefficients are negligible; by the mean of *three*, when a_3 and the higher co-efficients are negligible; and so on. The co-efficient a_2 is small in the case of the temperature; the curve which represents the course of the diurnal changes of temperature being, nearly, the curve of sines. In this case, then, the mean of the temperatures at any two *homonymous* hours is, nearly, the mean temperature of the day. This fact has been long known to meteorologists. The co-efficient a_3 is small in *all* the periodical functions with which we are concerned in magnetism and meteorology; and therefore the daily mean values of these functions will be given, very nearly, by the mean of any *three* equidistant observed values. The truth of this was shown by the author in the case of the magnetic declination, the atmospheric pressure, and temperature, as observed at the Magnetical Observatory of Dublin. In choosing the particular hours for a continuous system of observations, we should select those which correspond nearly to the maxima and minima of the observed elements, so as to obtain also the *daily range*. This condition is fulfilled, in the case of the magnetic declination, very nearly, by the hours 6 a.m., 2 p.m., 10 p.m.,—which give, moreover, the maximum and minimum of temperature, and of the tension of vapour, nearly, and the maximum pressure of the gaseous atmosphere; and if we add the intermediate hours 10 a.m., 6 p.m., we shall have, nearly, the principal maxima and minima of the other two magnetical elements. The author accordingly proposes, as the best hours of observation in a limited system, 6 a.m., 10, 2 p.m., 6, 10. The case is different where the course of the diurnal curve has been already obtained from a more extended system of observations. In this case the mean of the day may be inferred from observations taken at *any hours* whatever; and the hours of observation should therefore be chosen, chiefly, if not exclusively, with reference to the diurnal range of the observed elements. The author proceeds, in the next place, to consider the course to be pursued in the reduction of a more extended system of observations (such as that prescribed by the Royal Society in 1839, and adopted by all the Magnetical Observatories), when some of the observations are deficient. He shows that, in this case, in deducing the daily means from the remaining observations, we must attend, not only to the elimination of the regular diurnal variation, but also to that of the irregular changes of longer periods, which are sometimes (as in the case of the atmospheric pressure) more influential in the result. With this view he determines the values of the *mean daily fluctuation* for each of the elements already referred to; and compares the mean values of the hourly changes thence arising with that resulting from the regular diurnal variation.

The author shows, finally, in what manner the *monthly means* of the results obtained at any hour are to be corrected in the case of deficient observations, so as to render them comparable with those in which none are wanting; and he deduces the probable values of these corrections for each element, with the view of ascertaining in what cases the correction may be disregarded, and in what it is indispensable.

'On the Velocity and Height of Waves,' as observed by Capt. STANLEY; being the result of Experiments made on board H.M.S. Rattlesnake.—The method I adopted for the determination of the length and speed of the sea was to veer a spar astern by the marked lead line, when the ship was going dead before the wind and sea, until the spar was on the crest of one wave, while the ship's stern was on the crest of the preceding one. After a few trials, I found that when the sea was at all regular, I could obtain this distance within 2 or 3 fathoms, when the length of wave was 50. In order to ascertain the speed of the sea, the time was noted when the crest of the advancing wave passed the spar astern, and also the time when it reached the ship; and by taking a number of observations, I have every reason to believe we have obtained a result not very far from the truth. The officer noting the time in all these observations having only to register the indications of the watch when the observer called "Stop," had no bias to induce him to make the differences more regular. For measuring the height of the waves, I adopted a plan recommended to me by Mrs. Somerville, — which I have tried for ten years with great success. When the ship is in the trough of the sea, the person observing ascends the rigging until he can just see the crest of the coming wave on with the horizon, and the height of his eye above the ship's water-line will give a very fair measure of the difference of level between the crest and hollow of a sea. Of course, in all these observations, the mean of a great many have been taken; for even when the sea is most regular, apparently there is a change in the height of the individual waves. In order to show how closely the different results came, I give the observations on different days from which they were deduced.—

Experiment, No. 1.

Length of sea, 55 fathoms; speed of ship, 7·2 knots; height of wave, 22 feet; time the wave took in passing from spar to stern, 10 seconds; speed of sea deduced, 27' per hour.

Experiment, No. 2.	
Times observed of wave passing from spar to stern.	
Sec.	
8·7	
7·0	
9·2	Length of wave, 43 fathoms.
6·3	Average height, 20 feet.
7·0	Speed of ship, 6 knots.
8·6	Speed of wave deduced, 24·5 nautical miles per hour.
8·1	
8/64·0	
8'0	Mean time of wave going from spar to stern.
Experiment, No. 3.	
Sec.	
7·4	
13·0	Length of wave, 50 fathoms.
10·7	Height of wave, 20 feet.
10·0	Speed of ship, 6 knots.
10·3	Speed of wave deduced, 24 nautical miles per hour.
6/60·3	
10'0	Mean time of wave passing from spar to stern.
Experiment, No. 4.	
Sec.	
7·5	
7·0	
10·0	Length of wave, 30 to 60 fathoms.
9·0	Height of wave,—
9·0	Speed of ship, 5 knots.
10·0	Speed of wave deduced, 22·1 nautical miles per hour.
8·0	
9·5	
9/79·0	
7'8	Mean time of wave passing from spar to stern.
Experiment, No. 5.	
Length of wave, 33 fathoms.	
Speed of ship, 6 knots.	
Speed of wave deduced, 22·1 nautical miles per hour.	
Experiment, No. 6.	
Sec.	
12·0	
9·0	Length of wave, 57 fathoms. } Sea irregular;
7·5	Height of wave, 22 feet. } observations
10·5	Speed of ship, 7 knots. } not very good
10·5	Speed of wave deduced, 26·2 nautical miles per hour.
13·0	
6/62·5	
10'4	Mean time of wave going from spar to stern.
Experiment, No. 7.	
Sec.	
9·5	
6·5	Length of wave, 35 fathoms.
8·0	Height of wave, 17 feet.
8·5	Speed of ship, 7·8 knots.
7·0	Speed of wave deduced, 22 nautical miles per hour.
12·5	
10·0	
7/62·0	
8'9	Mean time of sea passing from spar to stern.

Summary of Observations.

Date.	Number of Observations.	Force of Wind.	Speed of Ship.	Height of Wave.	Length of Wave.	Time of Wave passing from spar to stern.	Speed of Sea deduced.	Remarks.
1847.								
April 21		5	7·2	22	55	10·0	27	Ship before the Wind with a heavy following Sea.
23	8	5	6·0	20	43	8·0	24·5	Ditto.
24	6	4	6·0	20	50	10·0	24·0	Ditto.
25	9	4	5·0		35 to 40	7·8	22·1	Sea irregular.
26		4	6·0		33	7·4	22·1	Heavy following Sea.
May 2	6	(4·5)	7·0	22	57	10·4	26·2	Sea irregular—observations not very good in consequence.
3	7	5	7·8	17	35	8·9	22	Wind and Sea a little on Port Quarter.

Note.—The Numbers denoting the strength of

Mr. SCOTT RUSSELL and Lord ADARE made some remarks on this communication;—in the course of which the latter said that few persons could realize the magnificent effect of standing on the cliffs of the west coast of Ireland, and observing the great breakers rolling in from the Atlantic, some of which he had, by a method exactly similar to that used by Capt. Stanley, convinced himself were 50 feet high, and occasionally they even reached the enormous magnitude of 150 feet.

'On the Compensation of Impressions moving over the Retina in Railway Travelling,' by Sir D. BREWSTER.

'On a general Law of Electrical Discharge,' by Sir W. S. HARRIS.—The author showed by reference to his published researches that certain questions re-

specting the attractions of spheres at various distances proposed to him at the last Meeting at Oxford could be fully answered; and by reference to two simple tables of actual experiments, he showed that the force requisite to cause discharge or break down the resistance of the air between two spheres was the same at every distance.

'On the Theory of Electro-magnetic Induction,' by Prof. W. THOMSON.—The object of this communication was to prove *a priori* a very beautiful theorem lately given by Neuman in his researches on this subject lately laid before the Berlin Academy of Sciences,—which theorem completely expresses the circumstances that determine the intensity current induced by a closed linear conductor (a bent metallic wire with its ends joined, under the influence of a

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magnet bar in a state of relative motion). The principle on which Prof. Thomson demonstrates the same theorem *à priori* is the axiom that "the amount of work expended in producing the relative motion on which the electro-magnetic induction depends, must be equivalent to the mechanical effect lost by the current induced."

'On the Equilibrium of Magnetic and Diamagnetic Bodies of any form under the Influence of the Terrestrial Magnetic Force,' by Prof. W. THOMSON.—The most remarkable feature of this communication is that the author has succeeded in proving that any magnetic or diamagnetic body, however irregular, has three principal magnetic axes at right angles, and each other such that if it be supported by its centre of gravity it will be in equilibrium with any one of these axes in the direction of the terrestrial magnetic force. Hence, and from another theorem demonstrated by the author, it follows that "an ellipsoid with three unequal axes may be taken as the general type for a body of any form whatever." He hence concludes (besides obvious analogies to the three principal dynamic axes of a body) "that a cube suspended by its centre of gravity must be isotropic," and closes by drawing the two following general conclusions:—"1st. The directive tendency on a diamagnetic substance of any form must be extremely small, probably quite insensible, in any actual experiment that can be made; depending as it does on the mutual action of the parts of the body which are primarily influenced to only a very feeble extent in the case of every known diamagnetic. 2nd. An elongated body, whether of a magnetic or diamagnetic substance, will tend to place itself in the direction of the lines of force; so that, for instance, either a bar of soft iron or a diamagnetic bar supported by its centre of gravity would, if perfectly free, assume the position of the dipping needle."

'On the Mechanical Equivalent of Heat,' by J. P. JOULE.

'On an Aurora in India,' in a letter by Dr. Hook.

'On Shooting Stars seen on the Night of August 10,' by Dr. ROBINSON.

'On a new Instrument for observing Meteors,' by Prof. CHALLIS.

'On a Means of determining the apparent Solar Time by the Diurnal Changes of the Plane of Polarization at the North Pole of the Sky,' by Prof. WHISTSTONE.—A short time after the discovery, by Malus, of the polarization of light by reflection, it was ascertained by Arago that the light reflected from different parts of the sky was polarized. The observation was made in clear weather, with the aid of a thin film of mica and a prism of Iceland spar; he saw that the two images projected on the sky were, in general, of dissimilar colours, which appeared to vary in intensity with the hour of the day and with the position, in relation to the sun, of the part of the sky from which the rays fell upon the film. The first attempt to assign a law to the phenomena of atmospheric polarization was made by Prof. Quetelet, of Brussels, in 1825, in the following terms:—"If the observer consider himself as placed in the centre of a sphere, of which the sun occupies one of the poles, the polarization is at its maximum at the different points of the equator of this sphere, and goes on diminishing in the ratio of the squares of the sines unto the poles, where it is *null*." This law would be true did the reflected light proceeding from the part of the sky regarded arise solely from the direct light of the sun sent to that part; but other secondary reflections occur which complicate the result, and give rise to the neutral points since discovered by Arago, Babinet, and Brewster. But for the purpose of explaining the principle of the instrument now submitted to the examination of the Section, we need not take into consideration the intensity of the polarization of the part of the sky to which it is directed; the plane of polarization for the time being is the only thing we need concern ourselves about, and a very simple expression, stated first I believe by M. Babinet, defines the position of this plane for any given point of the sky; it is this:—

"For a given point of the atmosphere the plane of polarization of the portion of polarized light which it sends to the eye, coincides with the plane which passes through this point, the eye of the observer and the sun." The truth of this law may be easily demonstrated, without any refined apparatus, in the

following manner:—Let the observer be provided with a Nicols prism and a plate of Iceland spar cut perpendicularly to the axis, and stand with his back towards the sun; keeping the diagonal of the prism always in the same vertical plane, let him direct it successively to every point of the sky within that plane; the intensity of the polarization, indicated by the brightness of the coloured image, will vary very considerably at these different points, but the plane of polarization, indicated by the upright position of the black or white cross, as the case may be, will remain unchanged. I leave out of consideration for the present the inversion of the plane of polarization, observed occasionally near the horizon below the neutral point. If we direct our analyzing apparatus to the zenith during the whole day, the change in the plane of polarization of that point of the sky will correspond with the azimuths of the sun. Let us now turn our attention to the north pole of the sky; as the sun in its apparent daily course moves equably in a circle round this pole, it is obvious that the planes of polarization at the point in question change exactly as the position of the hour circles do. The position of the plane of polarization of the north pole of the sky will, at any period of the day, therefore indicate the apparent or true solar time. The point of intersection of the hour circles, or the north pole of the sky, corresponds on only two days of the year with the maximum intensity of polarization; these days are the equinoxes; on all other days the points of maximum polarization of the respective hour circles describe a circle round the point of intersection; but the angular distance therefrom, which is greatest at the solstices, never exceeding $23^{\circ} 28'$, the polarization has always sufficient intensity to exhibit brilliant colours in films of selenite, &c. These points being premised, I proceed to describe the new instrument which I have called the Polar Clock or Dial. It is thus constructed:—At the extremity of a vertical pillar is fixed, within a brass ring, a glass disk, so inclined that its plane is perpendicular to the polar axis of the earth. On the lower half of this disk is a graduated semi-circle, divided into twelve parts (each of which is again subdivided into five or ten parts), and against the divisions the hours of the day are marked, commencing and terminating with six. Within the fixed brass ring containing the glass dial plate, the broad end of a conical tube is so fitted that it freely moves round its own axis; this broad end is closed by another glass disk, in the centre of which is a small star or other figure, formed of thin films of selenite, exhibiting, when examined with polarized light, strongly contrasting colours; and a hand is painted in such a position as to be a prolongation of one of the principal sections of the crystalline films. At the smaller end of the conical tube a Nicols prism is fixed, so that either of its diagonals shall be 45° from the principal section of the selenite films. The instrument being so fixed that the axis of the conical tube shall coincide with the polar axis of the earth, and the eye of the observer being placed to the Nicols prism, it will be remarked that the selenite star will in general be richly coloured, but as the tube is turned on its axis the colours will vary in intensity, and in two positions will entirely disappear. In one of these positions a small circular disk in the centre of the star will be a certain colour, red for instance, while in the other position it will exhibit the complementary colour. This effect is obtained by placing the principal section of the small central disk $22\frac{1}{2}^{\circ}$ from that of the other films of selenite which form the star. The rule to ascertain the times by this instrument is as follows: The tube must be turned round by the hand of the observer until the coloured star entirely disappears, while the disk in the centre remains red; the hand will then point accurately to the hour. The accuracy with which the solar time may be indicated by this means will depend on the exactness with which the plane of polarization can be determined; one degree of change in the plane corresponds with four minutes of solar time. The instrument may be furnished with a graduated quadrant, for the purpose of adapting it to any latitude; but if it be intended to be fixed in any locality, it may be permanently adjusted to the proper polar elevation, and the expense of the graduated quadrant be saved: a spirit level will be useful to adjust it accurately. The instrument might be set to its proper azimuth by the

sun's shadow at noon, or by means of a declination needle; but an observation with the instrument itself may be more readily employed for this purpose. Ascertain the true solar time by means of a good watch and a time equation table; set the hand of the polar clock to correspond thereto, and turn the vertical pillar on its axis until the colours of the selenite star entirely disappear. The instrument then will be properly adjusted. The advantages a polar clock possesses over a sun-dial are—1. The polar clock being constantly directed to the same point of the sky, there is no locality in which it cannot be employed; whereas, in order that the indications of a sun-dial should be observed during the whole day, no obstacle must exist at any time between the dial and the places of the sun, and it therefore cannot be applied in any confined situation. The polar clock is consequently applicable in places where a sun-dial would be of no avail, on the north side of a mountain or a lofty building for instance. 2. It will continue to indicate the time after sunset and before sunrise; in fact, so long as the rays of the sun are reflected from the atmosphere. 3. It will also indicate the time, but with less accuracy, when the sky is overcast, if the clouds do not exceed a certain density. The plane of polarization of the north pole of the sky moves in the opposite direction to that of the hand of a watch; it is more convenient therefore to have the hours graduated on the lower semi-circle, for the figures will then be read in their direct order, whereas they would be read backwards on an upper semi-circle. In the southern hemisphere the upper semi-circle should be employed, for the plane of polarization of the south pole of the sky changes in the same direction as the hand of a watch. If both the upper and lower semi-circles be graduated, the same instrument will serve equally for both hemispheres.—Several other forms of the polar clock were then described; we shall confine our description to one among them which, though much less accurate in its indications than the preceding, beautifully illustrates the principle. On a plate of glass twenty-six films of selenite of equal thickness are arranged radially in a semi-circle; they are placed so that the line bisecting the principal sections of the films shall correspond with the radii respectively, and figures corresponding to the hours are painted above each film in regular order. This plate of glass is fixed in a frame so that its plane is inclined to the horizon $38^{\circ} 32'$, the complement of the polar elevation; the light passing perpendicularly through this plate falls at the polarizing angle $56^{\circ} 45'$ on a reflector of black glass, which is inclined $18^{\circ} 13'$ to the horizon. This apparatus being properly adjusted, that is, so that the glass dial plate shall be perpendicular to the polar axis of the earth, the following will be the effects when presented towards an unclouded sky. At all times of the day the radii will appear of various shades of two complementary colours, which we will assume to be red and green; and the hour is indicated by the figure placed opposite the radius which contains the most red: the half hour is indicated by the equality of two adjacent tints.

'Observations accompanying Wind and Current Charts of the North Atlantic,' by Lieut. MAURY, U.S.*—These charts are offered, not for what they are, but for what they may be. They are a mere first attempt, a rough beginning, incomplete and faulty, by reason of the very defective materials used in their construction. They are compiled from abstracts of old sea logs kept without order, system or arrangement. Some are without record as to current, temperature, or variation; and others are faulty in many respects. But it was found necessary to make a *beginning* in order to attract the attention of navigators to the subject, and so procure labourers for the field; and this these charts have succeeded in doing, in this country at least [America]. Every navigator who will, is furnished gratis with a set of them and with a blank form for recording results of the requisite observations. And though but a few weeks have elapsed since the publication of these charts, such has been the eagerness of navigators to procure each his copy, and such their readiness to contribute the requisite data for a more complete set, that fleets of ships are

* Those interested in this subject will find a letter from Lieut. Maury bearing on this subject in the *Athenæum*, ante, p. 460.

now engaged in all parts of the world (as they go to and fro across the sea) in making and recording all by a prescribed form, the necessary observations. I have secured the co-operation both of the military and commercial marine of the United States, and before the end of the year, probably, not less than a thousand vessels will be collecting materials for the completion of these charts. Could the vessels of Great Britain be engaged in like manner, the value of the results would be greatly enhanced, because then we should probably have vessels enough engaged to afford synchronous observations for the space of a year, or longer, should it be desired, of the winds, currents, temperature of the ocean, &c., in all parts of the world. The plan is, to construct similar charts of the three great oceans, to lay down the tracks of all the vessels engaged, in colours according to the season. Thus the tracks in winter will be all in black; those in spring, in green; the summer, in red; and autumn, in blue. Each track has marked on it in such a manner as to show at a glance the daily experience of the navigator who made it as to winds, currents, temperature of the water, variation of the compass, &c.—thus placing at a glance before each one the combined experience of all who have sailed before him over the same part of the ocean. To illustrate the importance of this undertaking, I may be excused for alluding to some of the practical results already obtained. In consequence of the better knowledge afforded by this chart with regard to the winds in the North Atlantic Ocean, the average passage from the ports of the United States to the Equator, (and consequently to all ports the way to which leads across the Equator) has been shortened several days. I have the tracks of four vessels which have been to Rio de Janeiro in Brazil, by the new route proposed on this chart. They have invariably made shorter passages than vessels sailing at the same time by the old route. The average passage by the old route to the line, is 41 days; the mean of the four which have tried the new route is 31 days, the shortest being 24 days, the quickest of the season—and the longest 39 days. The information already collected has enabled me to strike out numerous *vigias* and fabulous dangers which deface our best general charts of the ocean, and which greatly increase the sources of anxiety that at all times surround the navigator. The position of these *vigias* is laid down on the chart as doubtful, and when the ship is in the vicinity of any of them, it is a sleepless time with her master. I have the tracks of several hundred vessels which pass over and within 5° of some of these *vigias*—so that if they were in existence they certainly would have been seen by one or more. But they are not mentioned in the log, and it may therefore be fairly concluded that they do not exist. At the proper time I shall publish a list of *vigias* which these charts show ought to be erased. The grouping together such a mass of facts in the manner proposed will lead to many collateral highly interesting and valuable results. Take as an example what is shown on the charts before you. If you will examine sheet No. 3, you will see that the trade winds between the parallels of 5° and 10° N. from the coast of Africa nearly to the middle of the Atlantic, lose their *trade* character and become the baffling, variable airs known to sailors as the *doldrums*; whereas between the same parallels—sheet No. 2.—on the American side, they blow with great regularity from the northward and eastward. In the former case, the sun shining upon the plains and deserts of Africa rarefies the air to windward, and this calls upon the winds of the sea to return and restore the equilibrium. In the latter case, the sun shining upon the plains of South America heats the air to leeward and causes the trade winds to hasten on and restore the equilibrium. In the one case, the rarefaction takes place to windward,—in the other, to leeward; and the effect produced is clearly indicated by the chart, and is precisely such as might be expected. Again: examine the winds in the Gulf of Mexico, sheet No. 1. The prevailing winds here are from the southward and eastward, while between the same parallels, sheet No. 2, and upon the broad ocean, the prevailing winds are the N.E. trades. As soon as the effect is seen, the cause becomes obvious. Is it not to be found in the action of the sun upon Texas and the States of Northern Mexico? There is an immense body of land in this

direction; and the heat of the sun upon it causes the winds to set towards it from the Gulf of Mexico. What effect a day of rain or of clouds over this body of land has upon the winds off the Pacific coast of Tehuantepec and Central America, is one of the interesting results to be anticipated from the work before us. But perhaps the most interesting result yet obtained—and the undertaking is but just commenced—is the discovery within the limits of the N.E. trades in the Atlantic of a region in which the prevailing winds are from the southward and westward. This region is limited in extent, and is somewhat in the shape of a wedge, with its base towards the coast of Africa between the Equator and 10° N. It extends from long. 10° W. to about 25° W.—being bounded by the Equator on one side and by a line drawn from lat. 10° N., long. 10° W. to lat. 5° N., long. 25° W. on the other. How the case may be to the south of the Equator I am not prepared to say; but to the north of it, I have discussed 2,292 independent observations made within the above described region by different vessels on their voyages across it. Included among these observations, calms were encountered on 246 occasions—leaving 2,046 observations upon the winds. Of these, the winds were found—

From the Nwd. & Ewd. (the regular trade quarter) 442 times.	
" Swd. & Ewd.	408 "
" Swd. & Wwd.	951 "
" Nwd. & Wwd.	245 "

The law which governs the trade winds is here reversed:—they blow from the opposite quarter; and the natural tendency of winds cannot be so suddenly and completely reversed without creating violent atmospheric disturbances. Accordingly, the facts show this region to be one of violent squalls, sudden gusts of wind, of thunder storms, heavy rains, lightning, baffling airs, and calms. It is known to sailors as the region for the Equatorial "doldrums." To the westward of this region and between the same parallels the winds again assume their normal direction, and prevail from the eastward. It is not a little singular, that vessels bound from any of the ports in the United States to Brazil should cross the Atlantic nearly twice; and if they be bound round the Cape of Good Hope they cross it three times. The usual route of vessels bound from the United States to any port beyond the Equator is to steer almost an east course,—many of them making the Canaries, and most of them Cape de Verd Islands, as the chart will show. They then shape their course through this "doldrum" region, and steer to the southward and westward for their port. Now, the log-books in my possession show that southward-bound vessels in traversing this region may expect to encounter either head winds or calms about 1,400 times out of 2,292. The navigator would, therefore, have about two chances to one against a fair wind in this portion of the route. To the west of this region, and more directly in the straight line from the United States, the chart shows a blank space through which a straggling vessel passes only now and then. The chart indicates, and facts subsequently obtained show, that here the prevailing winds are more favourable than they are by the usual route for a short passage to the Equator. The materials so far collected—and they are extensive—show that if a Rio-bound vessel were to keep to the westward of 25° the wager, instead of being 2 to 1 against fair winds, would be 3 to 1 in favour of them. Between the meridians of 25° and 35° W. I have 800 observations, extending from the Equator to 5° N. Of these—

257 give the wind from Nwd. & Ewd.	
366 " " Swd. & Ewd.	
102 " " Swd. & Wwd.	
30 " " Nwd. & Wwd.; and	
45 calms.	

Hence it appears that in this region there are 3 calms and 4 S.W. winds to the east of long. 25° to 1 calm and 1 S.W. wind to the west of that meridian. The wager against head winds and calms by this route and in this part of it would be 1 head wind for 3 fair ones, instead of 2 head winds for 1 fair one by the usual route. Moreover, the distance by the new route is nearly 1,000 miles less than by the old. It may be asked, Why has not a route which is so obviously better and more direct been tried before? The answer is ready:—Sailors, more than any other class of men, are prone to follow in the wake of their predecessors. They know and feel that the experience of any one of them as to winds and weather at sea

is, at the best, very limited: it is confined to the spot where he may be. They are, therefore, prone to follow their guide-books. Cook went that way in 1776; hydrographers put his track on their chart as a guide; the next to come after him took the same track, and each has continued to follow the other.

Of the Resistance of the Air to Pendulums, by G. G. STOKES, Esq.—The results obtained from the common theory of fluid motion, in which the pressure is supposed equal in all directions, for the resistance of the air to an oscillating sphere or cylindrical rod, do not agree with the experiments of Bessel and Baily, the discrepancy being so much the greater as the radius of the sphere or rod is smaller. The author stated that he had solved the problem in the cases of the sphere and cylinder, using instead of the common equations the equations which he had given in the Eighth volume of the Cambridge Philosophical Transactions, which had been previously obtained by different methods by Navier, by Poisson, and by M. de Saint-Venant. These equations contain one arbitrary constant, the value of which obtained from one experiment ought, if the theory were correct, to satisfy the others; or, which comes to the same, different experiments ought to lead to the same value of the constant, except so far as depends on errors of observation. Three of Baily's experiments, made on cylindrical rods of very different diameters, which gave results very different from one another and from that obtained from the common theory, led to very nearly the same value for the arbitrary constant, and this value satisfied very nearly the experiments made on spheres suspended by fine wires.

SECTION D.—ZOOLOGY AND BOTANY.

MR. C. C. BABINGTON made a communication on some recent additions to the British Flora, and exhibited drawings of them prepared for publication in the Supplement of the 'English Botany.' The following is a list of the new plants noticed.—

Lolium linicola	Trifolium Molinieri
Apera interrupta	T. strictum
Anacharis Alsinistrum	Melilotus arvensis
Simethis bicolor	Filago Jussei
Ranunculus tripartitus	F. apicalis
Orobancha Picridis	Crepis setosa,
Malva verticillata	

and some cryptogamic plants.

MR. H. E. STRICKLAND read the Report of the committee for the conducting of experiments on the Vitality of Seeds, and invited the contribution of seeds for the experiments now going on in the Botanic Garden at Oxford.

The reading led to a conversation, in which Dr. Carpenter, Mr. Joshua Clarke, Mr. Jerdan, Mr. Jeffrey, Dr. Daubeny, and Mr. Babington took part. Instances were related in which seeds had retained their vitality for a very great period, and reference was made to the well-known experiments with wheat found in mummies. DR. DAUBENY stated that in no case was the growth of the wheat found in mummies free from suspicion. He had recently heard of an experiment conducted with great care in which seed from an unrolled mummy was sown,—a plant came up, but when it was examined, it turned out to be maize, a plant of the New World, and consequently must have been introduced into the mummy subsequently to the discovery of America. —MR. BABINGTON expressed his conviction, from an examination of the evidence in support of the supposed growth of seeds found with mummies, that it was quite insufficient to support the inference that seeds retained their vitality for periods of two or three thousand years.

MR. PHILLIPS made a communication 'On the Colour Stripe of a Macartney Rose,' in which the colour was developed in such a position in the petals of the rose as to lead to the inference that exposure to light was the chief agent of its production.

Prof. E. FORBES gave the results of the labours of the Dredging Committee during the past year, and also of his own and Mr. M'Andrews's labours in Milford Haven.

'On the Influence of Temperature upon the Distribution of Fauna in the Ægean Sea,' by Lieut. SPRATT.—After the publication by the British Association of the highly interesting Report of the Distribution of the Fauna of the Ægean by Prof. Forbes, I was led to imagine that temperature might have a great influence on that distribution. With

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of the earth or mud on which it rested—a point which he believed of material importance.—Mr. J. BALL inquired of Prof. E. Forbes how far Lieut. Spratt's researches confirmed his views of the nature of the deep-sea Fauna of the *Ægean*? Such inquiries as those engaged in by Lieut. Spratt were of great importance for the purpose of ascertaining how far temperature and other causes might interfere with the distribution of animals according to Prof. Forbes's law. He would suggest whether deep-sea observations on temperature might not be carried on better with thermometers dependent on the expansion of solid metals.—Prof. E. FORBES expressed his obligations to Lieut. Spratt for the able manner in which he had carried on these researches; they were of great value and interest. In answer to Mr. Ball, he stated that these researches quite confirmed the correctness of the views he had taken with regard to the distribution of animals and plants; and the further researches made by the dredge since the time he had first announced them at Cambridge had also done so.—Dr. T. WILLIAMS performed some experiments with an air-pump, from which he inferred that the influence of the pressure of the atmosphere had been very much overlooked in accounting for the distribution of animals in the air and sea. He had also performed some experiments on the distribution of light, which led him to conclude that this agent was much less influential when passing through water than is generally supposed.—Sir E. BELCHER could generally confirm the correctness of Lieut. Spratt's measurements of temperature. In taking the temperature of the deep sea he had used an instrument which he described, and which prevented any accident to the thermometer. He had always found the mud or bottom of the sea of the same temperature as the water directly above it. Fish lived at much lower depths than Dr. Williams had supposed possible. He had seen them brought up from a depth of 150 fathoms. The bottoms of vessels were examined with great facility by means of tubes, and in clear water the sea bottom had been seen at a depth of 33 fathoms. He alluded to the great difference of temperature produced by currents in the sea. Thus, the gulf-stream often exhibited a temperature of 86°, whilst the surrounding ocean was not more than 60°.

—Prof. E. FORBES stated that animals brought up from a depth of 270 fathoms lived very well in water on the deck of a vessel—thus showing that pressure had little to do with their existence. The inference, that light penetrated to great depths in the ocean, was founded on the existence of colour in plants at those great depths. As a proof that the influence of temperature was very great, he might state that an entirely different Fauna and Flora existed in the gulf-stream to that which existed on its borders.—Mr. J. BALL believed that adaptation to pressure was speedily effected in animals. No proper inference could be drawn from Dr. Williams's experiments on light through tubes. The light in water was diffused, and not in tubes.—Dr. CARPENTER stated that animals differed in their power of bearing pressure. The condor, in descending from its flight, frequently passed through three miles of atmosphere in a few moments. The whale was said to go from the surface to the depth of 1,000 fathoms. Man, although at first affected by the rarefied air of a mountain, soon got used to it.

‘On the Value of the Origins of Nerves as a Homological Character,’ by Prof. OWEN.—He stated that he was led to offer a few remarks on this subject from the circumstance that the supply of nerves to the arms of man from the lower cervical pairs, and not from cranial nerves, had formed a difficulty to some in accepting his determination of the general homology of the arms as diverging appendages of the costal arch of the occipital vertebra. Since the determination of a general homology was dependent on that of the special homology of parts, it was requisite to inquire how far the preliminary and minor conclusions were affected by that condition of the nerves which had been supposed to invalidate the major proposition cited. The author assumed that it would be granted that the arms of man were homologous with the fore-limbs of beasts, the wings of birds, the pectorals of fishes. But in the wing of the fowl the nerves were derived from the thirteenth and fourteenth pairs, counting backwards from the brain, whilst its homologue in man received nerves from

the fifth to the eighth pairs. Taking a closer instance of special homology, Prof. Owen showed that the wings of the swan derived their nerves from very different pairs from those that supplied the wings of the swift; and he presumed that a still greater difference in their relations to the neural axis must have characterized the nerves of the pectoral paddles in the ichthyosaur and plesiosaur respectively. The difference in the origins of the nerves of homologous parts was also manifested in the ventral fins of fishes, which present such great varieties of relative position to the head as to afford the ichthyologist his characters of the orders *Abdominales*, *Thoracici*, *Jugulares*. Now, if these differences in the place of origin of nerves do not invalidate the conclusions of special homology the author contended that they were equally inconclusive against the determination of general homologies. He briefly stated the facts confirmatory of the ideas of Aristotle and Cuvier as to the special homology of the arms of man with the pectoral fins of fish; and summed up the arguments that had been given in his work on the ‘Homologies of the Skeleton,’ in favour of viewing the attachment of the scapular arch to the occiput in fishes, as the normal one, in relation to the archetype, and as proving that arch to be the hæmal one of the occipital vertebra, and the pectoral fins to be the radiate appendages of such hæmal arch.

‘On the Os Humero-capsulare of the Ornithorhynchus,’ by Prof. OWEN.—He referred to the discovery by Prof. Nitzsch of a small accessory bone articulated to the coracoid and humerus in certain birds called “os humero-capsulare,” and stated that he had discovered an ossicle attached to the head of the humerus and to the capsule of the shoulder-joint of the *Ornithorhynchus paradoxus*. It was equally distinct from the proximal epiphysis forming the head of the bone, and from that which caps the great tuberosity in the young animal, and it was present in full-grown *Ornithorhynchi*. It appeared to have escaped the notice of Meckel; and although but a small instance of resemblance to birds was interesting as an additional proof of the affinities of the paradoxical mammal.

‘On the Relations of Phenomena of Development to Zoological Classification,’ by Prof. OWEN.

MONDAY.

SECTION F.—STATISTICS—continued.

‘Facts bearing on the Progress of the Railway System,’ by Mr. W. HARDING.—The modern railway system of Europe may be said to date from 1830, when the construction, by Mr. G. Stephenson, of the Liverpool and Manchester Railway, with its locomotive engines, was completed. After that date we heard no more of such prophecies as the following (from the *Quarterly Review*, in 1825), which it is not useless to record as a lesson of caution to us for the future:—“As to those persons who speculate on making railways generally throughout the kingdom, and superseding all the canals, all the waggons, mails and stage-coaches, post-chaises, and, in short, every other mode of conveyance by land and by water, we deem them and their visionary schemes unworthy of notice. What, for instance, can be more palpably absurd and ridiculous than the following paragraph,”—in which a prospect is held out of locomotives travelling twice as fast as stage-coaches. “We should as soon,” adds the reviewer, “expect the people of Woolwich to suffer themselves to be fired off upon one of Congreve’s ricochet rockets as trust themselves to the mercy of such a machine, going at such a rate.” The modern railway system has, however, not only done this, but it has given rise to new habits in the present generation, and has proved to be the great mechanical invention of the nineteenth century, as the steam-engine was of the eighteenth. As it is still in its infancy, it is especially the province of statistical inquiry to watch its growth, so that on the one hand timely remedies may be applied to its defects, and on the other free scope may be given to its beneficial tendencies. Valuable papers have been contributed by Messrs. Laing, Porter, Graham and others, analyzing the traffic on railways during the infancy of the system to the year 1843. Shortly before that period there had been a pause in railways. During two years only five miles had been sanctioned, but the period which has since elapsed comprises the memor-

considerable loss to the company. The same experiment was repeated on the second-class carriages: they were made more comfortable by inserting glass windows instead of wooden shutters and by carrying the interior partition higher. The number of first-class passengers shortly fell off by 12 per cent., but beyond the second-class passengers did not appreciably increase; this experiment, therefore, also resulted in loss. The results of these experiments were then—1st. That a reduction of fares to 4d. per mile even from so low a rate as 1d. per mile increased the number travelling by nearly a quarter of a million or by two-thirds of the whole population of the district. As these people were generally of the less affluent classes, it appears that they were actually drawn out of the noisome streets of Glasgow to the North of the Clyde by the temptation of a very low fare, and immediately that the fare was raised they were driven back again into the city. 2nd. That under the circumstances of the time in question, cheap and rapid travelling increased the number travelling; but improving the lower class carriages did not, however, appear to act in the same way, but merely tempted passengers from the higher class carriages—those from the second-class into the third-class carriages, and from the first into the second class:—of course it by no means follows that similar results would ensue on lines in other localities; each case must be determined by its peculiar conditions. 3rd. That no limit can be assigned to the number of travellers which cheapening and quickening the means of conveyance will create. The introduction of the railway, even where steam boats already afforded a most pleasant, rapid, and cheap communication, increased, we see, the number travelling from 110,000 to 2,000,000—22,000,000 being 5 times the whole population of the district. I doubt whether either at home or abroad there is a large proportion of travellers to the whole population to be found. The traffic between Glasgow and Paisley is probably the most remarkable instance on record of the increase of travelling caused by improved facilities. In 1814 there was only one coach a week between Glasgow and Paisley conveying about 2,000 passengers per annum; if we multiply this by 5 to allow for the greater number of gigs and private vehicles then in use, we only get 10,000 passengers per annum conveyed between the two places. In 1842 the numbers travelling by public conveyance between Glasgow and Paisley were upwards of 900,000. Now as the population between 1814 and 1842 had only about doubled itself, while the traffic, as we see, had multiplied itself ninety-fold, it follows that the increased facilities of transport had increased the number travelling relatively to the population 45 times: that is to say, that for every journey which an inhabitant of Glasgow or Paisley took in 1814 he took 45 journeys in 1842. These results, I conceive, place it beyond a doubt that we should spare no effort to make railway travelling cheap and within the reach of all classes.

Now there is only one true way of encouraging cheap travelling, and that is by keeping down the original cost, and the annual expenses of railways. All the other contrivances which the public are inclined to trust, such as legislative restriction on profits, and so on, are mere quackery. Even competition is inapplicable to railways, and is not to be relied on. Mr. R. Stephenson, the engineer, put the whole case into one sentence when he said, to have combination is practicable, competition is impossible. The experience of all railway competition shows that this is true; when, therefore, under the plea of competition unnecessary outlay is being incurred, the public may rest assured that they will ultimately suffer for it in the charges they will have to pay.

Mr. Hill Williams, the actuary, has compiled some useful tables, to show arithmetically "how far a remunerative charge for the conveyance of passengers and goods on railways is modified by the original cost and other circumstances.

The following is an extract showing the effect of increased cost of construction—

Total yearly traffic, number of passengers or tons of goods, 90,000.

* Evidence Select Committee on Railway Act Enactments, 1846.
† Appendix No. 7, Select Committee on Railway Act Enactments, 1846.

	Original cost of Construction £20,000 per mile.	Original cost of Construction £20,000 per mile.	Original cost of Construction £20,000 per mile.	Original cost of Construction £20,000 per mile.
Fixed charge per mile on every passenger or ton of goods requisite in order to give common interest, 5 p. cent. on the outlay.	d. 100	d. 133	d. 166	d. 200

We see from this that the fixed charge on every ton of goods or passenger must average 2d. per mile to return common interest on a railway costing 30,000l., whereas if the railway cost 20,000l. 14d. per mile would be sufficient, and if it cost 15,000l. 1d. per mile would be sufficient.

After a series of similar investigations, the author concludes as follows.—The result of the preceding inquiry is, it appears to me, on the whole satisfactory. The railway system has doubled itself in the last three years. Fares have been greatly reduced. Third-class passengers have largely increased. The importance and value of the traffic in goods and cattle relatively to the passenger traffic have become more apparent. The number of trains is greater and the speed of some of the trains has been accelerated; and all this has been effected without any falling off in the average receipts on each mile of railway in working, but with an increase probably sufficient to meet the increase of the working expenses attendant on the increased accommodation now afforded by railways; whatever falling off in dividends there may have been, is, therefore, to be attributed in a general view of the subject to the capitalization of loans and the creation of fictitious capital by the purchase of railways at premiums, and, therefore, at sums beyond what they actually cost. These being profitable speculations when shares were high, were pushed to such an extent as now to press severely on the original share capital of railway companies. The great evil of the last three years is the extravagant outlay of money which has taken place; an outlay which, instead of being checked by the legislature, has been encouraged to the utmost by the mode of inquiry adopted. This has inflicted on the railway system a burden which it will never be able to throw off, and which the public will always have to bear with them in a higher rate of charge for conveyance than would with common prudence have been necessary. It only remains to stop the extravagance with a strong hand. The very existence of the railway companies depends on the economy they can practise in making and working their railways; and nothing which on the face of it involves increased outlay, be it diversity of gauge and its consequence the mixed gauge, or the more plausible plea of competition, should be countenanced either by railway companies or by the legislature if we wish to secure for ourselves the full fruits of that admirable invention which England and English engineers who have followed in the steps of George Stephenson have given to the world.

TO CORRESPONDENTS.—S. B.—W. T.—R. D. T.—J. T. S.—C. B.—W. R.—H. D. T.—H. M.—J. M.—W. R.—An Artizan—R. G.—received.

E. T.—This correspondent's communication is unsuited to our columns. He has fallen into the mistake of supposing that "received" meant accepted.

Errata.—P. 857, col. 3, l. 36, for "Linkogring" read Linkoping; l. 65, for "colothon" read colorbar; l. 66, for "mentis" read martia; P. 858, col. 1, l. 12, for "Spauran" read Sparrman; l. 52, for "Afhandlingar" read Afhandlingar; l. 53, for "Keim" read Kemi; col. 2, l. 23 for "Lodemark" read Sodmark.

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